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November/December 2018

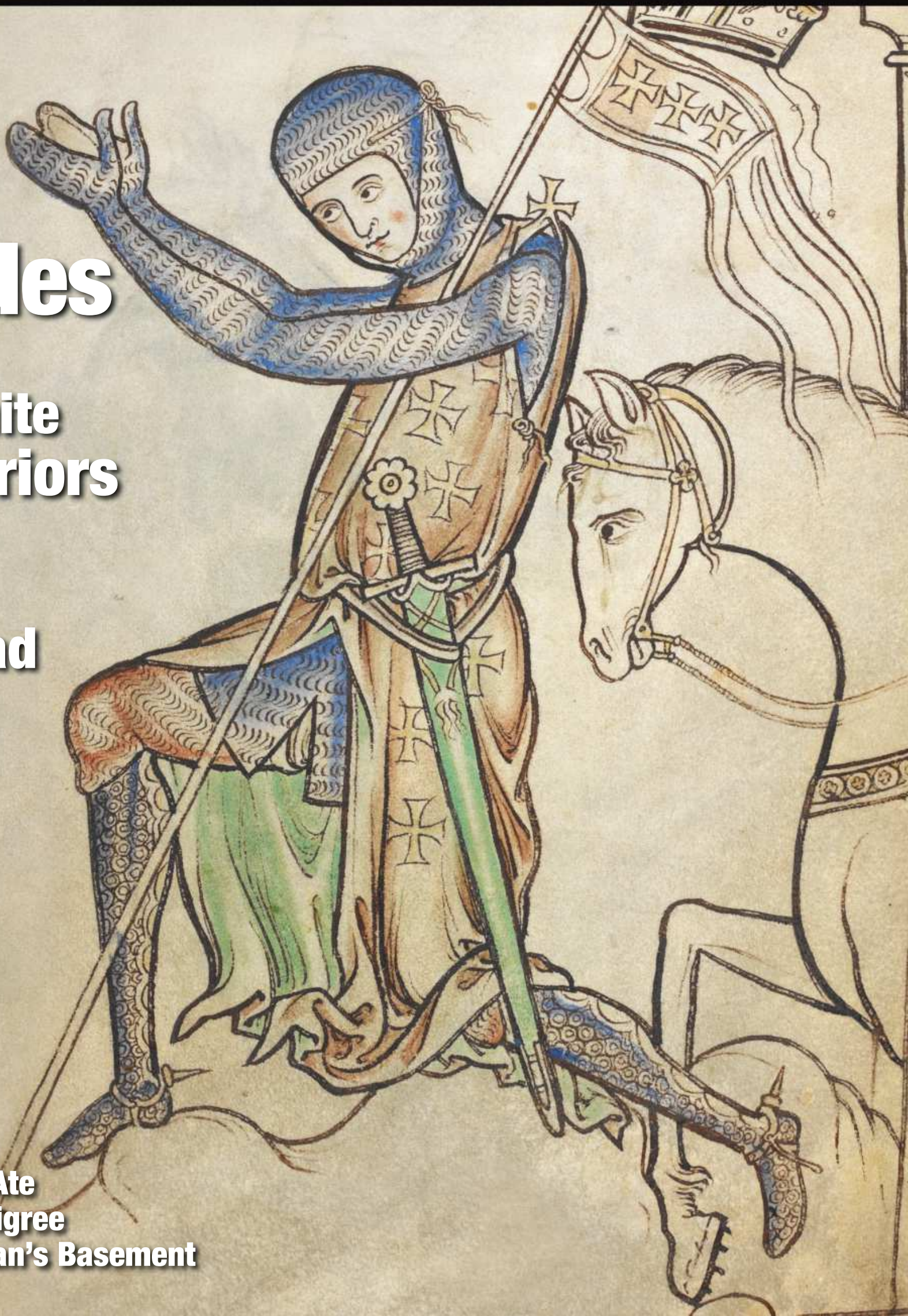
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COVER: A kneeling Crusader knight and his horse. Westminster Psalter, England, ca. 1250.

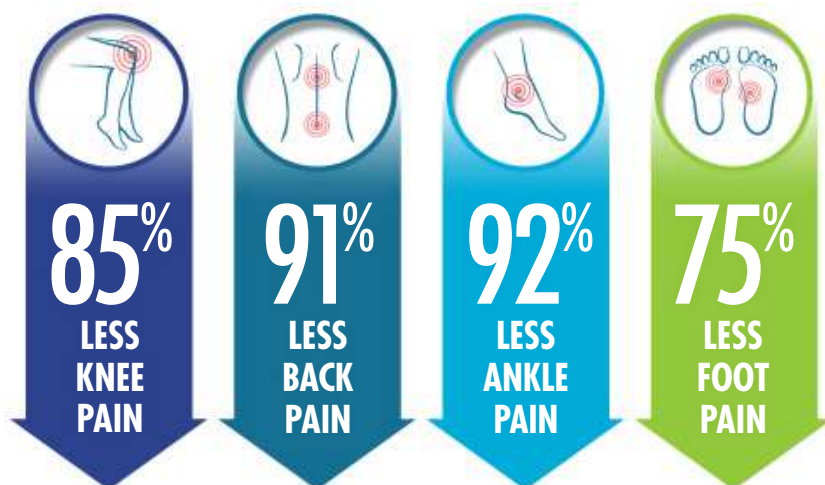
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A draft of comfort

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NEW BEGINNINGS



The most exciting thing about making a magazine is that moment when everything begins to come together, when what started out as ideas on a whiteboard takes shape as an issue of *ARCHAEOLOGY*. Each issue is, in some ways, a blank slate to fill—but one with 70 years of history behind it. As we begin our eighth decade of publication, I would like to introduce myself to you and express my profound thanks for being entrusted with the position of editor in chief.

From the time I was seven years old, I wanted to be an archaeologist. I could not have imagined when I first subscribed to *ARCHAEOLOGY* as a teenager that I would eventually have the chance to join the staff of the one magazine that expresses so very well in its pages my passion for the field. During my years here I have served under two remarkably talented editors in chief.

To Peter A. Young, for his steady, guiding hand, and to Claudia Valentino, for her inestimable generosity with her knowledge and experience, I owe my most heartfelt gratitude. I also wish to salute my colleagues at the Archaeological Institute of America and their tireless mission to promote archaeological inquiry and to serve both professional members and the general public. To my former professors and students, I say thank you for setting me on this path. And to my family, nothing is ever possible without your constant encouragement, steadfast support, and unflagging care.

To the magazine's extraordinary, committed, and knowledgeable staff, I say how much I look forward to this new journey together. And to you, our readers, I want to say that I am eager to continue to craft the magazine that you regularly tell us is such an important and enjoyable part of your lives. Archaeology is a field of possibilities, full of chances to tell fascinating stories about the human past. We embrace the opportunity to share these stories with you. *ARCHAEOLOGY*'s founders were visionaries and they created something unique that has thrived for generations. My foremost goal is to continue the legacy they have left in our care.



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Editor in Chief

ARCHAEOLOGY

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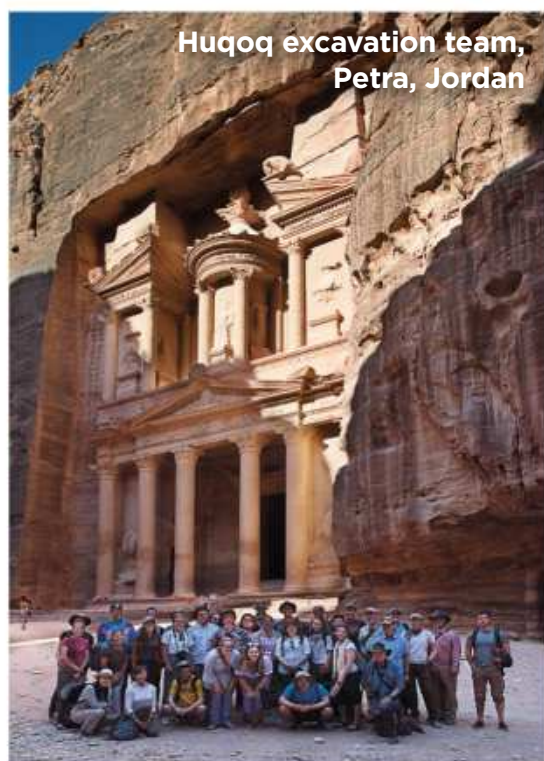
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FROM THE PRESIDENT

FOOD FOR THOUGHT

Every summer when I travel to the Middle East, I marvel at the ingenuity of the diverse populations who inhabited the region in antiquity. This past summer I brought my entire dig team from Israel's Galilee to visit Petra in Jordan. Although people today are familiar with the iconic facade of "The Treasury" from the film *Indiana Jones and the Last Crusade*, many might not realize this monument has nothing to do with the Holy Grail. Instead, it is one of hundreds of tombs carved into the red sandstone cliffs of Petra.



Huqoq excavation team,
Petra, Jordan

Petra was the capital of the Nabataeans—originally a nomadic, pre-Islamic people who spoke an early form of the Arabic language and controlled the lucrative caravan routes connecting the Arabian Peninsula with the Mediterranean Sea. By the time of Jesus, the Nabataeans had established a kingdom that included the Negev and Sinai Deserts and part of modern southern Jordan. Visitors to Petra are understandably dazzled by its spectacular rock-cut tombs, but the Nabataeans' most remarkable achievement was the establishment of a highly sophisticated system of water management that enabled them to flourish in the hyper-arid desert environment. Petra is crisscrossed by channels that carried every drop of the scant rainfall into cisterns. In the Negev Desert the Nabataeans cultivated grain and fruit trees by damming and channeling seasonal flash

flood waters in dry riverbeds (washes), and clearing and terracing hillsides. They adapted to the desert environment in a variety of intelligent ways. For example, in the Nabataean town of Mampsis in the Negev, the thick stone walls of their houses provided insulation from the extreme heat and cold of the desert, and small slit windows kept out the dust and bright sunlight.

A visit to a place such as Petra resonates today as we seek knowledge about the past and consider our future. Having benefited from modern advances in science and technology, we are now realizing the consequences of our dwindling natural resources. I could not help but think that we might learn a lot from the Nabataeans, who found a way to survive and flourish in one of the most challenging environments on Earth.

Jodi Magness

President, Archaeological Institute of America

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FROM OUR READERS



A CHOICE WEAPON

I would suggest that the Neolithic balls ("Spheres of Influence," September/October 2018) may be bola balls. The weapons are ancient ones, and the grooves would have made it easy to tie the cord around them while allowing the stone to stick out to effect the blow.

*Bob Dopp
Marietta, GA*

National Museums Scotland curator Hugo Anderson-Whymark replies:

There are a few uses for the balls that seem plausible. Their use as weapons is a strong possibility, either bound in cord and thrown like South American bolas,

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as suggested by Sir John Evans in 1872, or bound to a haft as a macehead, as suggested by John Smith in 1876. However, for at least some of these artifacts, it is likely that they were deployed as symbolic or ceremonial weapons that indicated the status and authority of their holder. Parallels with ceremonial maceheads used in the U.K. parliament may be readily drawn.

TEA TIME

As a tea drinker in a world of coffee drinkers, I found it very interesting that the coffeehouses of seventeenth and eighteenth century England mostly served tea ("A Local Institution," September/October 2018). I am also wondering about a possible simple explanation of the lack of pipes found in the Clapham's coffeehouse dig. Unlike tea cups that were obviously provided by the establishment, people would bring their own pipes and would, of course, take them home again when they left.

*Georgia L. Young
Glover, VT*

UNKNOWN BROOKLYN

Your magazine's articles on sunken treasures or ancient Egyptian discoveries always make for interesting reads, but I have to hand it to Jason Urbanus for his story entitled "New York City's Dirtiest Beach" (September/October 2018), as he managed to compose a fascinating seven-page write-up on a garbage dump. No easy task indeed, but I have to admit, I took in

every word and left with a different viewpoint on maintaining a sustainable planet.

*Darryl Cauchon
Somersworth, NH*



SETTING SUN

I enjoyed Roger Atwood's piece ("Sun Storm," July/August 2018) on the famous Aztec sculpture commonly known as the Sun Stone or Calendar Stone. He highlighted a number of different interpretations expressed by scholars in recent times. I would like to add my interpretation as well, which proposes that the central image shows the death of the Aztec sun god during the final solar eclipse. This interpretation explains not only the death aspect of the sun god but also the nocturnal images, represented by fire serpents with starry snouts and the constellations pecked on the stone's background.

*Susan Milbrath
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THE AMERICAN CANINE FAMILY TREE



Ancient dog skeleton, Koster, Illinois

The fate of the indigenous dogs of the New World in the wake of European colonization has long fascinated both scholars and dog lovers. Some modern breeds, such as Catahoulas and Mexican and Peruvian hairless, are popularly thought to trace their roots to ancestors who were present before Columbus' arrival. In recent years, geneticists have looked into how much ancient DNA these and other breeds actually carry. Now, a widely reported, large-scale study by an international multidisciplinary team suggests that they do not have much—if any—indigenous American ancestry. According to this analysis, modern American dogs are almost entirely descended from European dogs that began arriving 500 years ago. “The indigenous American dogs seem to have been almost completely wiped out,” says Angela Perri, a zooarchaeologist from Durham University in England who participated in the study. This new finding contradicts other genetic studies that suggest some dogs living today still carry some indigenous DNA.

Perri and her colleagues analyzed complete genomes

retrieved from the remains of seven ancient dogs that lived in Siberia and North America, and those of more than 5,000 modern dogs. They also studied 71 samples of ancient dog mitochondrial DNA. Mitochondria are the organs that create energy inside living cells. They have their own genomes that are inherited from the mother's side. The team's analysis suggests that dogs were brought to the Americas in four migrations. The first dogs would have arrived from Asia 9,900 years ago, several thousand years after the first humans arrived. A second group of dogs may have been brought to the

Arctic by the Thule people, the ancestors of the Inuit, about 1,000 years ago. The third migration began with the settlement of European colonies 500 years ago, and the last took place around 1900 when huskies were brought to Alaska from Siberia during the Gold Rush. Those last two migrations, the team believes, led to the almost total disappearance of the Americas' indigenous dogs.

There may have been many reasons for this, says Perri. “Things like canine distemper or rabies came in with European dogs and may have taken a toll on native dog populations,” she says. Perri also cites historical documents describing Spanish explorers eating native dogs and notes that English colonists killed native dogs freely and prevented them from breeding with European dogs.

Another recent study of American dog DNA was led by Peter Savolainen, an evolutionary geneticist at the Royal Institute of Technology in Stockholm. His team examined mitochondrial DNA in some 2,000 modern dogs, and while they found evidence for large-scale replacement of indig-

FROM THE TRENCHES

enous dogs, they also detected traces of ancient DNA in the modern samples. “There is still a small percentage of ancient American ancestry in modern American dogs,” says Savolainen. His team’s analysis showed that Chihuahuas are related to Mexico’s indigenous dogs and that a free-ranging breed from the southeastern United States called the Carolina Dog has about 30 percent American ancestry. In Inuit dogs they did not find any European ancestry.

There are several factors that might account for the discrepancy between the teams’ findings. Savolainen acknowledges that his study would only have



Carolina Dog

detected ancestry from female dogs since he did not examine complete genomes, as Perri’s team did. This could have skewed results. Perri, in addition, notes that it’s possible that Savolainen’s team did not distinguish between modern Arctic dog ancestry and precontact dog ancestry, because both carry similar types of mitochondrial DNA. Still, Perri acknowledges that her team’s study couldn’t sample DNA from every dog population in the Americas. “It’s likely,” she says, “that there are isolated populations in South and Central America that are descendants of the precontact group of dogs.”—Zach Zorich

OFF THE GRID

THINGVELLIR NATIONAL PARK, ICELAND

Thingvellir National Park, just under 30 miles northeast of Reykjavik, may accurately be described as the birthplace of the Icelandic nation. Situated on a boundary of tectonic plates, the 35-square-mile park is a patchwork of highlands, fertile fields, and rifts filled with crystal-clear water. Thingvellir translates to “plains of assembly.” The site was home to the Althing, Iceland’s parliament, which was founded as an open-air assembly in A.D. 930 and met there annually until 1798. The governing body was founded by some of the island’s first Viking settlers and turned into the pop-up capital of Iceland for two weeks every year. In addition to hosting legislative debate, the assembly featured markets, sporting competitions, and feasts.

Local chieftains are believed to have sent an emissary to Norway to record laws with which to govern the newly colonized island. Upon his return, the lands of Thingvellir—seized from their owner when he was convicted of murder—were chosen as the place of assembly thanks to their central location and ample natural resources. Researchers have been at work for more than two decades surveying the entire park for sites of archaeological significance. Among these are the remains of the Althing itself, including the ceremonial Lögberg, or “law rock,” a lithic outcrop where speeches and arguments were made, as well as remnants of turf-and-stone booths where high-status attendees set up camp. “Thingvellir was at the heart of all the major developments in Iceland’s history through the eighteenth century,” says archaeologist Margrét Hrönn Hallmundsdóttir, who has directed recent surveys. “While the site features prominently in the Icelandic sagas, especially with regard to feuds that were either resolved or not during the assembly, we continue to find archaeological remains we had no information about.”

THE SITE

Thingvellir is easily accessible via main roads from Reykjavik. Begin your tour at the visitor’s center, which provides an overview of activities available at the park, and features a new exhibit, just opened in 2018, on the history of the site. Then walk up to a viewing platform to take in the entirety of the



Thingvellir, Iceland



Northern Lights, Thingvellir

main assembly area. Many of the archaeological points of interest in the park, including booth remnants and ancient runes still visible to the naked eye, are well-mapped and connected via footpaths. Agriculture buffs can also learn about the evolution of farming in Iceland from the ninth century through the Industrial Revolution and visit historic farm buildings. For guests who wish

to stay overnight at the park, two campsites are maintained, along with a service center and cafeteria.

WHILE YOU’RE THERE

Do as the locals do and embrace all things outdoors. Park guests can hike, arrange horseback rides, snorkel in the park’s famed fissures, or, with luck during colder months, take in the northern lights. Having immersed yourself in the wildness of it all, return to Reykjavik to visit the National Museum of Iceland and the Reykjavik Maritime Museum. Visitors can only come away with newfound perspective on the ingenuity and determination of Iceland’s earliest settlers.

—MARLEY BROWN

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FROM THE TRENCHES

MARS EXPLORED

The wreckage of *Mars*, a sixteenth-century Swedish warship that lies 230 feet under the Baltic Sea near the island of Öland, has yielded evidence of the dramatic events that led to its sinking. History records that in 1564, during the Northern Seven Years' War, several hundred soldiers from Danish and Lübeckian warships boarded *Mars* and subdued its crew. Then, according to contemporary sources, *Mars*' main gunpowder hold exploded, killing most of those on board. "We can see from the remains we have identified that there was a massive fire and the bow of the ship had just been blown off," says maritime archaeologist Rolf Fabricius Warming. "We found it about 130 feet away from the rest of the ship."

Amid the wreckage, investigators have uncovered hand grenades and what are likely to be pieces of armor and a sword. They have also found skeletal parts, including a femur that was apparently damaged at the knee by a sharp-edged weapon. A large grapnel, which may have been used by one of the attacking ships to grasp *Mars* before boarding, has turned up as well. The project has been carried out by the Maritime Archaeological Research Institute at Södertörn University in Sweden, Global Underwater Explorers, Västerviks Museum, Ocean Discovery, and the marine surveying firm MMT.

—DANIEL WEISS



Diver explores *Mars* wreckage, Baltic Sea



Digital elevation model of wreck site

AZTEC FISHING

Mexican archaeologists have discovered a 39-inch-long sawfish blade at the bottom of a stone box packed with thousands of other ceremonial objects at the Aztec religious complex in Mexico City known as the Templo Mayor. This isn't the first sawfish blade excavated there—archaeologists have found 77 so far—but it is possibly the largest, says the project's director, Leonardo López Luján. Sawfish, a type of ray, had deep spiritual significance for the Aztecs because the fish was considered a hybrid of earth and sea, says archaeologist Alejandra Aguirre. The blade, its sharp teeth intact, was the last object to be excavated from a deposit containing some 11,800 artifacts, including the

carcass of a wolf dressed in gold armor ("Aztec Warrior Wolf," Top 10, January/February 2018), birds, and thousands of snails. Known as Offering 174, the box was interred under a floor during

the reign of the emperor Ahuitzotl (1486–1502) and, according to Aguirre, may be a kind of tribute to the expansion of the Aztec realm under his rule.

—ROGER ATWOOD



Sawfish blades

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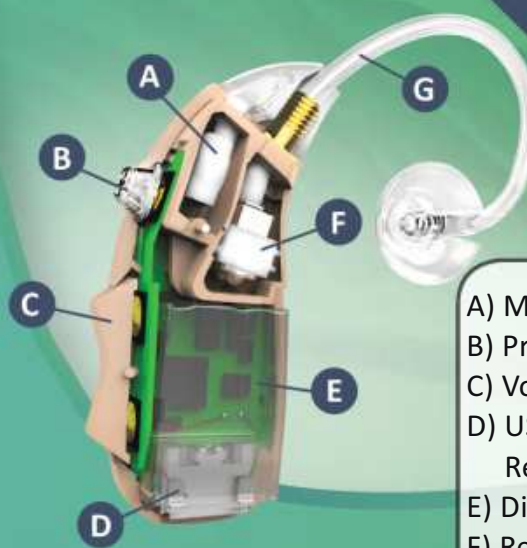


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FROM THE TRENCHES

IRON AGE TEENAGERS



Iron Age burial of a young man, Kazakhstan



Aerial image of burial mound

In a valley in eastern Kazakhstan's remote Tarbagatai Mountains, archaeologists recently excavated a kurgan, or burial mound, holding the remains of two Iron Age teenagers who lived roughly 2,700 years ago. The two belonged to the Saka, a nomadic Iranian-speaking people closely related to the Scythians, who occupied much of Central Asia from the eighth to the second century B.C. Led by Zainolla Samashev, director of the Margulan Institute of Archaeology, the team identified the scant remains of a young woman of about 16 whose grave had been looted and the undisturbed skeleton of a man no older than 19. The man wore a golden torc around his neck, held a gold and bronze dagger, and was equipped with a gold-plated wooden quiver holding arrows with bronze tips. Both teenagers were buried in finery once covered with gold beads and gold appliqués of miniature deer heads with oversized antlers.

—ERIC A. POWELL



Gold jewelry and
semiprecious stone
necklace found in
the young man's
burial

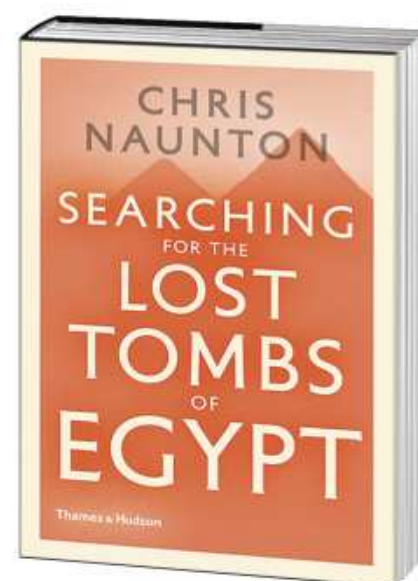


**Bronze hand,
Vindolanda,
England**

HAND OF GOD

Archaeologists believe that a bronze hand from the Roman fort of Vindolanda was associated with the cult worship of Jupiter Dolichenus at the site. The palm of the four-inch hand may have once held a small effigy of the god, who was often depicted riding a bull and grasping an ax and a lightning bolt, says Vindolanda director of excavations, archaeologist Andrew Birley. The hand was originally attached to a staff that was likely used to bless worshippers. Although much is still unknown about the cult of Jupiter Dolichenus, it is believed that its origins lie in the Near East. “What little we do know is that the cult was open to both men and women, and to different social strata in Roman society, which would make it appealing to a broad audience,” says Birley. Both the hand and the temple of Jupiter Dolichenus in Vindolanda date to the early third century A.D., a tumultuous period in Roman Britain, fraught with war, rebellion, and bloodshed.

—JASON URBANUS

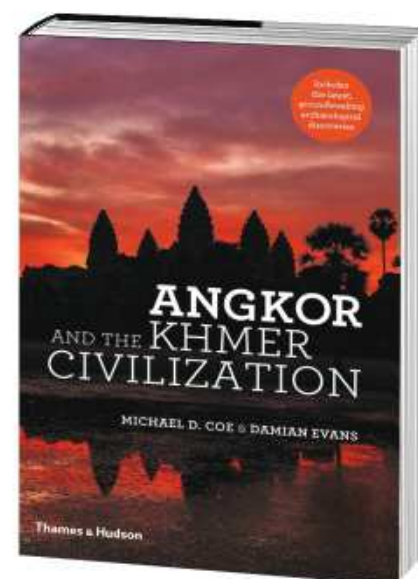


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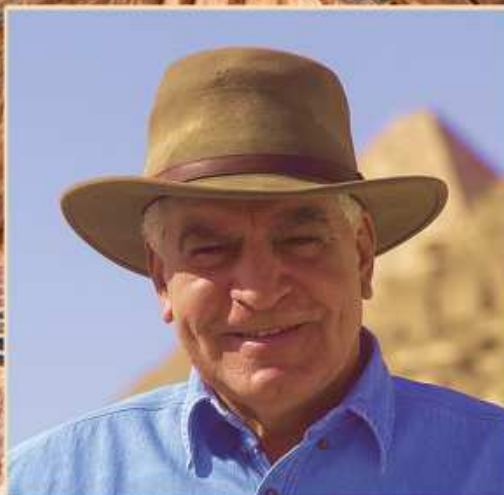
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Middle Egypt – The land of one god, Aten
A region which represents one of the most important periods in the development of Egyptian civilization. Akhenaten made Amarna his capital – he was one of the most controversial Pharaohs in history, called a rebel by some, yet others see him as a great visionary who created the first monotheistic religion.

FROM THE TRENCHES

BEAUTY ENDURES

It was common in antiquity for deceased individuals to be sent on their journey to the afterlife with a collection of their cherished objects. Nevertheless, archaeologists in Germany were surprised by the burial assemblage of a wealthy Roman woman who was entombed with her jewelry, her makeup kit, and other finely crafted beauty items. “Cosmetic utensils and jewelry as gifts in women’s graves are not uncommon, but the variety and quality of the offerings is particularly interesting,” says Susanne Willer of the LVR-LandesMuseum in Bonn.

The discovery was made during the installation of sewer and drainage systems near Zülpich. The 25-to-30-year-old woman died around the fourth century B.C. and was interred in a massive stone sarcophagus. When researchers finally lifted and opened the 4.5-ton casket, they discovered a wealth of well-preserved cosmetic artifacts, including glass perfume vials, a bronze oil jar, a silver hand mirror, and a slate makeup palette, with application tools, hairpins, and even a finely carved folding knife with a Hercules figurine as its handle. One glass jar contained the Latin phrase *Utere Felix*, meaning “use (this) and be happy.” The unknown woman was buried along what would have been the main road connecting the important Roman towns of Trier and Cologne. “These burial offerings,” says Willer, “highlight the life of the rural upper classes in the Rhineland 1,700 years ago, their everyday culture, and their luxury.”

—JASON URBANUS



Stone sarcophagus,
Zülpich, Germany



Glass dish



Slate makeup
palette



Necklace and earrings



Folding
knife



Silver
hand mirror

Giza Plateau, Egypt



Livestock bones

LET THEM EAT SOUP

A large number of livestock bones found in a mound of settlement debris on Egypt's Giza Plateau are offering possible insights into the diet of workers who toiled there some 4,500 years ago. Amid the debris, archaeologists from Ancient Egypt Research Associates (AERA) have unearthed sealings dating to the reign of the 4th Dynasty pharaoh Khafre (r. ca. 2520–2494 B.C.), along with chunks of painted plaster suggesting the material is from wealthy settlements. They also found a concentration of long, meat-bearing sheep and goat bones, many of whose ends had been snapped off.

Two Egyptian archaeologists taking part in a field school at the site immediately recognized that the snapped-off ends were likely used to make gelatin soup, a cheap source of protein enjoyed to this day in Egypt. AERA director Mark Lehner suggests the meat from the bones was likely reserved for the area's elites, while workers—quite possibly those who built Khafre's pyramid, the second largest in Giza—were allotted the bone ends to make a protein-rich stew.

—DANIEL WEISS

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FROM THE TRENCHES

ANOTHER FORM OF SLAVERY

The remains of 95 individuals have been discovered in an unmarked cemetery in Sugar Land, Texas, just outside Houston. In the mid-1800s, the town of Sugar Land was built on a sugar plantation that used slave labor. When slavery was abolished in 1865, the plantation, and later the Imperial Sugar company, leased convicts from state prisons as laborers until 1910, when the practice was outlawed.

In 1908, the state had bought 5,235 acres of land from Imperial Sugar, establishing the Imperial Farm Prison. The incarcerated were forced to provide agricultural labor for the prison farm until the state closed the prison in 2011. The Fort Bend Independent School District purchased the former prison's land seven years ago and, in compliance with Texas' Antiquities Code, commissioned an archaeological evaluation of the site. The skeletons were uncovered during the evaluation by Goshawk Environmental Consulting, Inc. Archaeologists believe that the remains can be tied to late nineteenth- and early twentieth-century African-American prisoners who were forced to work the plantation as part of the state's post-Civil War convict-lease system. Many historians have called the convict-lease system "slavery by another name." Researchers plan to study the bones before they are reinterred to learn more about life under those harsh conditions.

—LYDIA PYNE

Cemetery excavation site, Sugar Land, Texas



Shackles and other artifacts from the site

EAT MORE SPORE

The fungus *Ustilago maydis* may damage the plant it grows on (and certainly looks disgusting), but it was an important part of the diet of the people who lived at Turkey Pen Ruin in Utah from 400 B.C. to A.D. 400. The fungus, better known as corn smut, infects maize plants, turning the kernels gray and misshapen. About 80 percent of the diet eaten by the Ancestral Puebloan people living at Turkey Pen Ruin was maize, which lacks certain amino acids. As a result, those who rely heavily on



Corn blighted by smut

maize can fall prey to a potentially fatal nutritional deficiency called pellagra.

Jenna Battillo, an archaeologist with Southern Methodist University, wanted to understand why these Ancestral Puebloan people didn't suffer from this kind of malnutrition. She analyzed samples of feces from 44 individuals who lived between A.D. 1 and 200. Forty-three of the samples contained high levels of corn smut spores. These spores contain the amino acids missing from maize and may have given the people of Turkey Pen Ruin a way to stave off nutritional diseases.

—ZACH ZORICH

WELL, WELL

More than 1,000 unexploded rockets have been recovered from an abandoned well in the state of Karnataka in southern India. The excavators believe the corroded shells date to the eighteenth century when the Muslim warrior King Tipu Sultan ruled the region. The cache was uncovered when the well, located at Nagara Fort in the Shivamogga District, was being repaired. “The rockets, which are of several sizes, are metallic cylinders filled with some powder, possibly saltpeter or some form of explosive propellant,” says R. Shejeshwara Nayaka, assistant director of the Karnataka Department of Archaeology, Museums, and Heritage (DAMH), who led the excavation in 2018. “They have circular end caps on one



Rockets, Nagara Fort, India

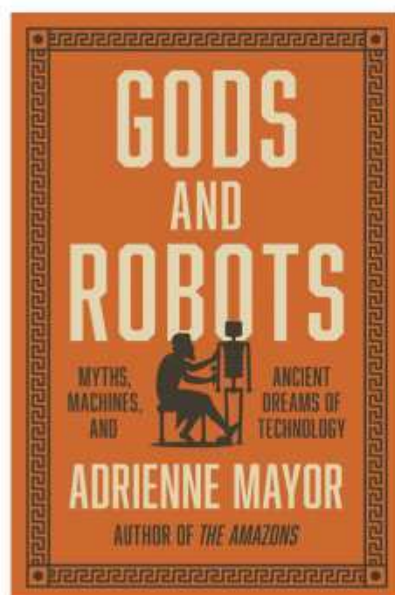


Rockets

side, while on the other side there is an opening which lights like a fuse. We have also found some equipment that might have been used for assembling or making them.” G. Venkatesh, commissioner of DAMH, adds, “Records say that Tipu Sultan’s father, Hyder Ali, was the first

to use metal-cased rockets. He also had an armory and factory at Nagara Fort, a strategically very important city. There is a strong possibility that this site was used as a storage point or a factory for the rockets.”

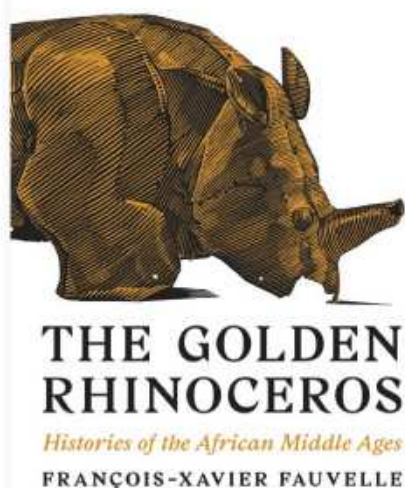
—GURVINDER SINGH



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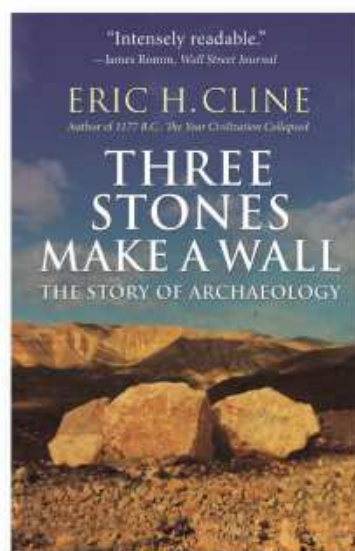
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NOMADIC NECROPOLIS

Some 5,000 years ago, nomadic herders in East Africa constructed a monumental cemetery. The site, called Lothagam North, is close to Lake Turkana in northwest Kenya and has been excavated by a team led by Elisabeth Hildebrand of Stony Brook University and Katherine Grillo of the University of Florida. It features a platform around 100 feet in diameter marked by megalithic pillars. In a large cavity at the platform's center, the team found the remains of at least 580 people, almost all buried with ornaments, with no distinction based on gender or age. This counters assumptions that such monumental building projects were only embarked upon by settled, socially stratified farmers.

Burials at the site continued for hundreds of years, coinciding with a period when rainfall in the area decreased dramatically and Lake Turkana is believed



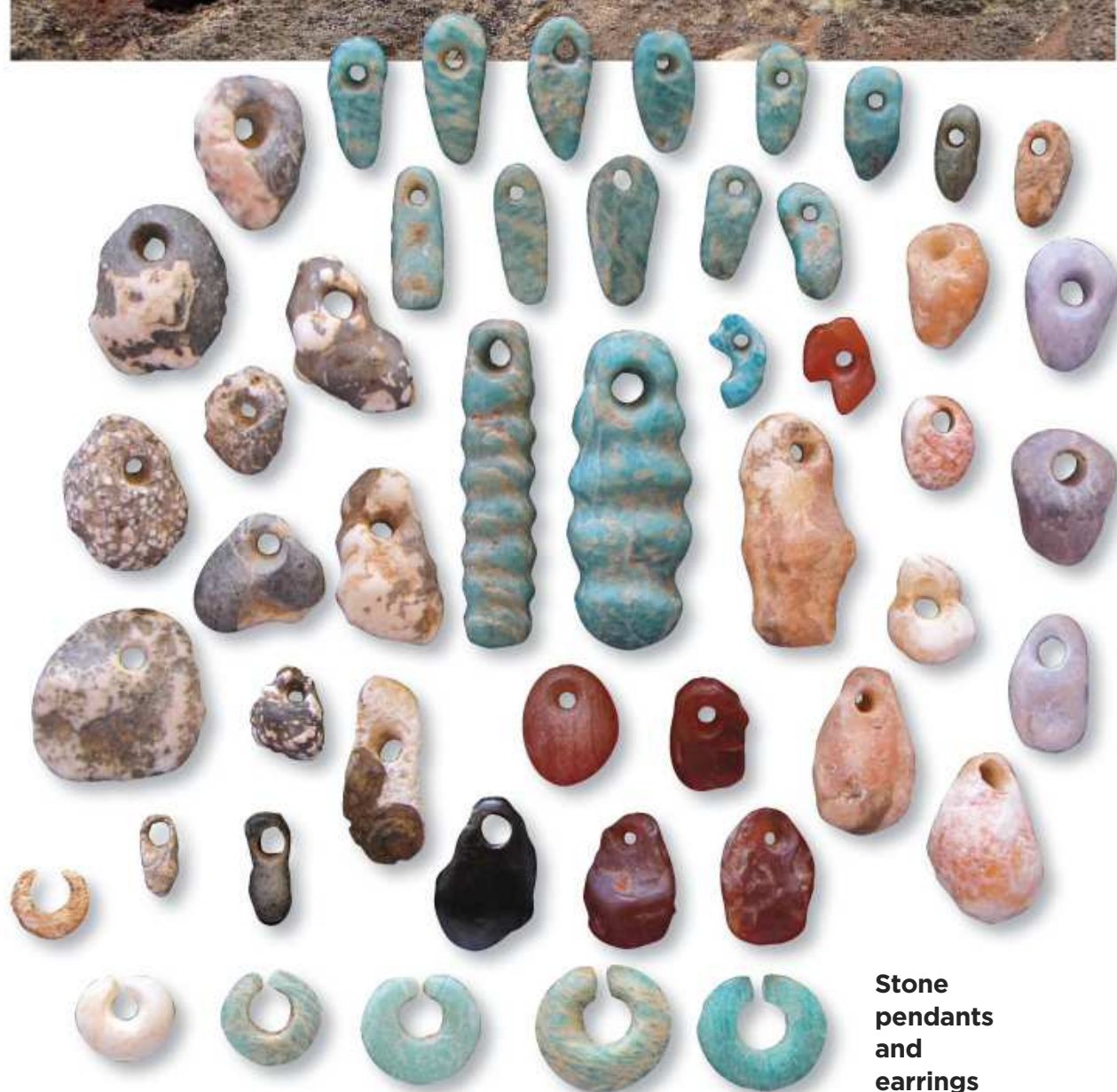
Lothagam North, Kenya



Stone carving of a bovine

to have shrunk to half its former size. The researchers think construction of the site may have been a reaction to this unstable climate. "At a time when the lake shore was shifting from year to year, establishing a landmark that would serve as a constant reference point may have been very important, socially and even psychologically," says Hildebrand. While the herders abruptly stopped using the cemetery for unknown reasons, they expended a great deal of effort to cover the site with stones before moving on.

—DANIEL WEISS



Stone pendants and earrings

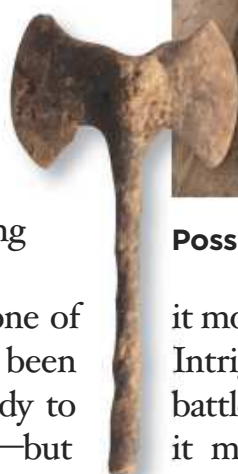
CONAN'S STORM CELLAR

National Park Service archaeologist Jeffrey Shanks recently led a team excavating a storm cellar at the house of Robert E. Howard, the author who created the pulp hero Conan the Barbarian, among others, at a desk in his bedroom. Howard's house in Cross Plains, Texas, is on the National Register of Historic Places, and the storm cellar offered the tantalizing possibility of learning something new about Howard's life.

If the cellar had appeared in one of Howard's stories, it might have been the tomb of an undead king ready to do battle to protect his treasure—but

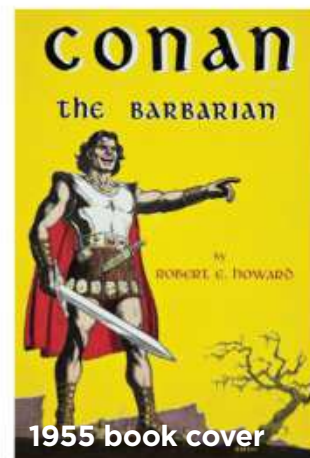


Jars in basement, Cross Plains, Texas



Possible hatpin

it mostly held jars of pickled green beans. Intriguingly, the team also found a tiny battle-ax-shaped object, but Shanks thinks it may be part of a hatpin, or maybe



1955 book cover

a bone from a toad's pelvis. The jars probably postdate Howard's time, but an apothecary bottle found in the cellar likely belonged to his father, who was a country doctor.

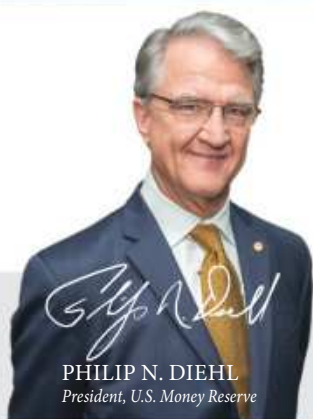
It may not be a magic sword or chest full of gold but Shanks sees a different value in his work. "We get to look past the legend and mythology of this famous author to see a little snapshot of his life."

—ZACH ZORICH

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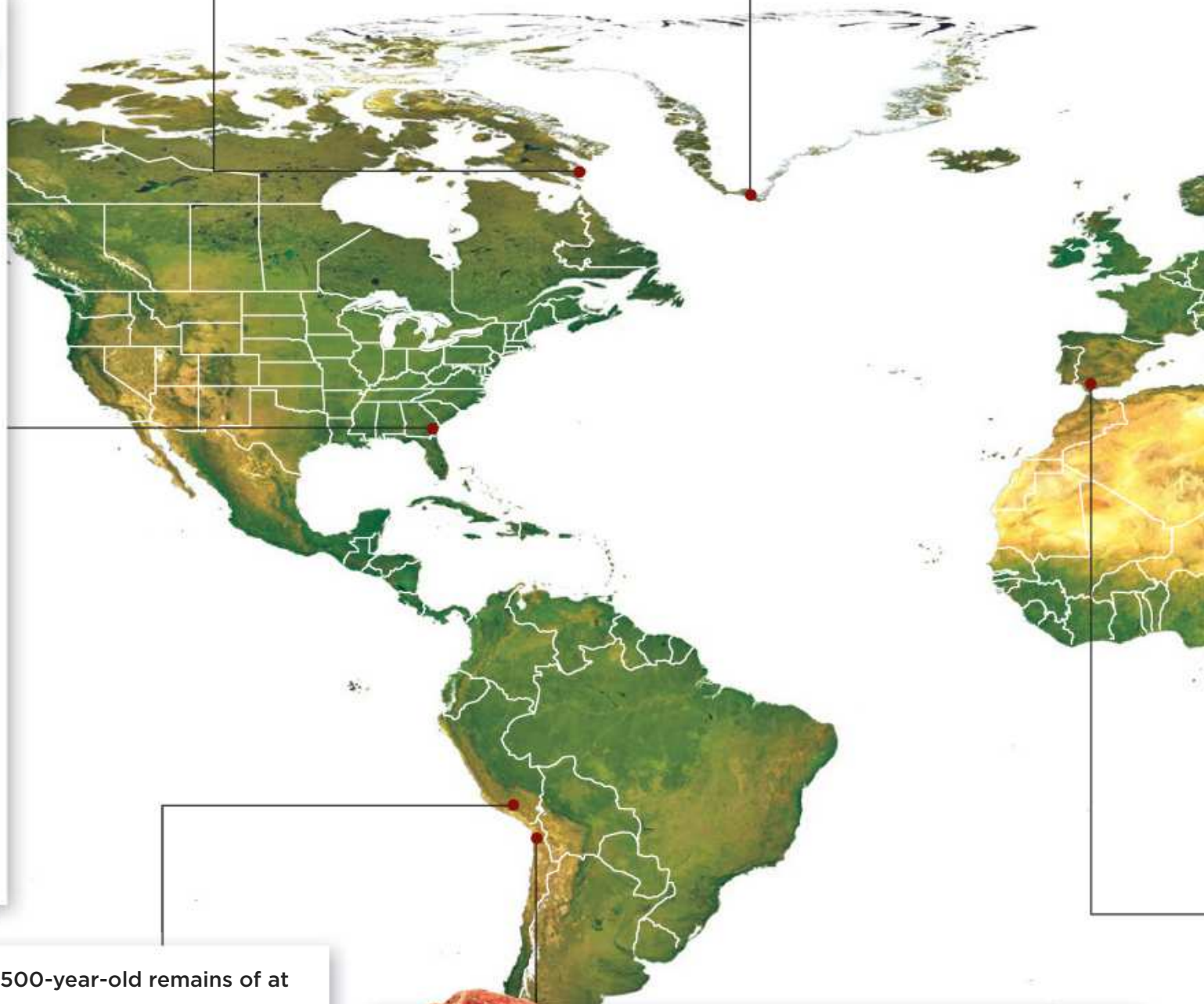
CANADA: It was once believed that around A.D. 1000, Norse explorers taught Paleo-Inuit communities in the Canadian Arctic how to weave animal hair and sinews into yarn. However, dating these textiles has been problematic because they are often contaminated by whale and seal oil, rendering attempts at radiocarbon dating unreliable. A new process, however, has successfully removed these contaminants and accurately dated a textile sample from Baffin Island, proving that spun yarn and weaving technology predated European contact by at least a millennium.



GREENLAND: Norse settlers once thrived in Greenland before vanishing in the 15th century. A new theory suggests that a decline in the medieval walrus-ivory market may have sent them packing. DNA analysis of walrus bones from sites around western Europe shows that during the 13th and 14th centuries, most of the ivory entering the continent belonged to walrus populations found around Greenland, and may have been exclusively supplied by Norse Greenlanders. When the demand for walrus ivory diminished, these settlers may have been forced to abandon the island.



GEORGIA: At least 7 cremation burials and a copper band from St. Catherine's Island show that Native Americans living there 3,500 years ago exchanged goods and cultural ideas through surprisingly long-distance trade networks. Analysis of the copper artifact's chemical signature determined that it originated almost 1,000 miles away in the Great Lakes region. This new evidence is a clear indication that the use of copper and the practice of cremation were introduced to coastal Georgia 1,000 years earlier than previously thought.



PERU: The 1,500-year-old remains of at least 60 individuals from the La Ramada culture were discovered in a series of deep pits in the Vitor Valley of southern Peru. Six trophy heads were also found in the graves. Trophy heads were sometimes removed from enemies killed in battle, but these examples may have actually belonged to friendly combatants. Since it was burdensome to transport the bodies of fallen comrades home, only the heads may have been brought back for burial within the community.



CHILE: A unique 500-year-old burial of 2 ritually sacrificed Inca females was found at Cerro Esmeralda in the 1970s. The pair were dressed in fine clothing and buried with lavish grave goods. New chemical analysis of the red pigment from their clothes detected cinnabar, a mineral not native to northern Chile. While the cinnabar itself was a prestige item, imported from hundreds of miles away, it can also be highly toxic when inhaled, and may have been used to deter would-be grave robbers.



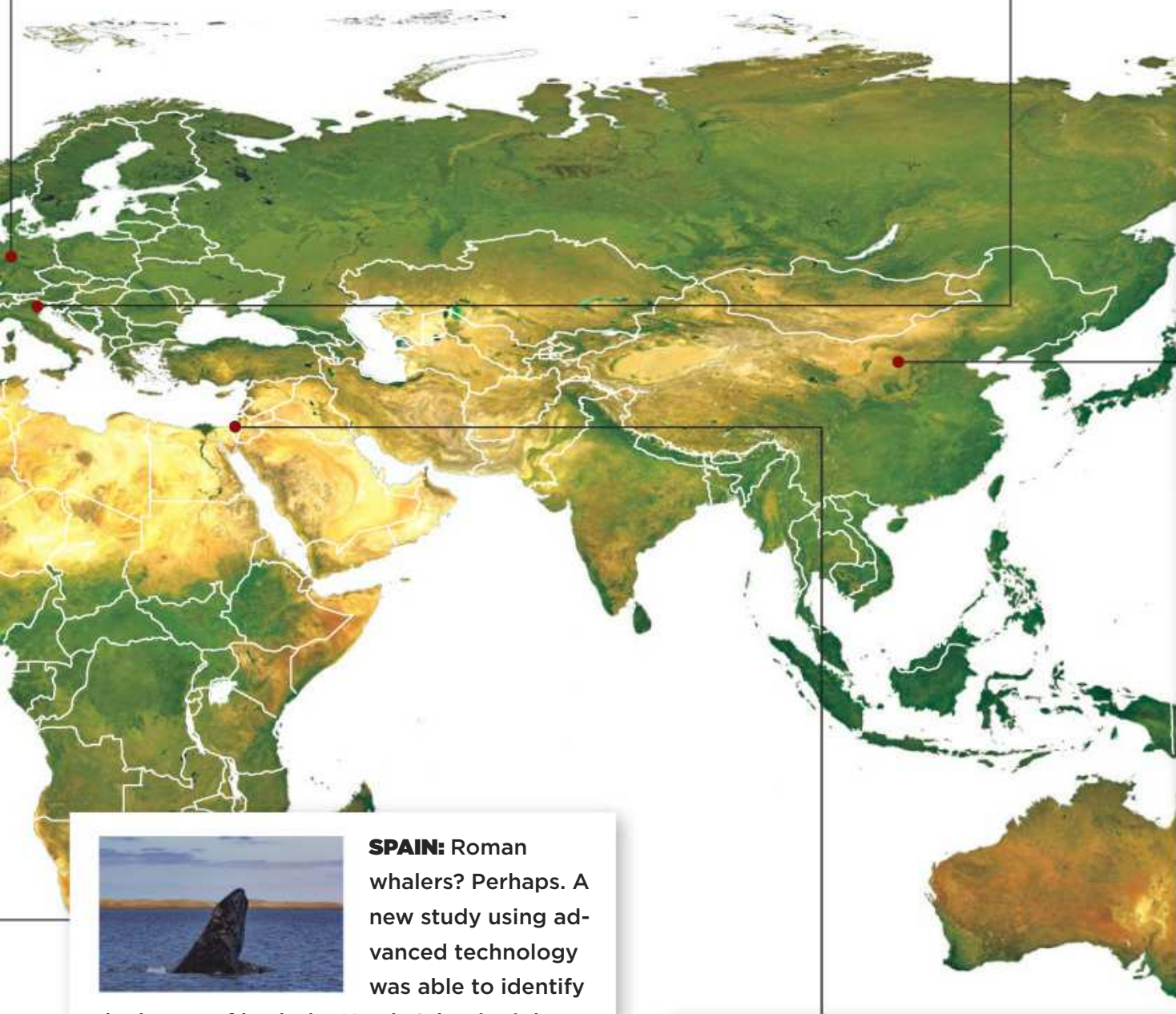
GERMANY: In 2017, when archaeologists initially unearthed the foundations of a large 2nd-century A.D. Roman building buried near Cologne's center, they believed it was a public assembly

hall. However, further excavations revealed that the interior walls were lined with a series of peculiar niches, uncharacteristic of such a structure. Experts now believe that these recesses were once used to store scrolls, as many as 20,000, and that the ruins are those of Germany's earliest known public library.



ITALY: Although the ice mummy known as Ötzi was discovered in the Alps more than a quarter century ago, his remains continue to provide information about daily life more than 5 millennia ago. Scientists recently examined the corpse's surprisingly well-preserved stomach contents to determine what he

ate just prior to his death. They learned that his last meal was chock-full of essential minerals required for good health, and consisted of fat and meat from wild ibex and red deer, as well as whole grain cereals.



CHINA: The ruins of a massive walled city from the site of Shimao in northern China are revising ancient Chinese history. Archaeologists originally thought the site was part of the Great Wall, since they had not expected to find an enormous prehistoric complex in such a peripheral region. Shimao, however, apparently flourished around 2000 B.C., when it was the largest known settlement in China. At its center was a 230-foot-tall stepped pyramid, which contained 11 platforms and was used as a residential palace for local rulers.



SPAIN: Roman whalers? Perhaps. A new study using advanced technology was able to identify

the bones of both the North Atlantic right whale and the gray whale from a handful of Roman sites around the Strait of Gibraltar. Southern Iberia was once home to a thriving Roman fish-processing industry. Although these whale species no longer frequent these waters, researchers argue that around 1,500 to 2,000 years ago, they would have been prevalent in the western Mediterranean and were likely hunted by Roman fishermen.



ISRAEL: Pottery workers at a Roman ceramics factory enjoyed some workplace perks that rival even the recreational areas of today's Silicon Valley tech campuses. The complex was founded in the 3rd century A.D. near Gedera and specialized in producing wine storage jars. A large bath complex, containing 20 pools of hot and cold water, was located adjacent to the manufacturing floor, along with a room that provided various gaming boards etched into its stone benches.

Reimagining the Crusades

A detailed picture of more than two centuries of European Christian life in the Holy Land is emerging from new excavations at monasteries, towns, cemeteries, and some of the world's most enduring castles

by ANDREW LAWLER

GOD WILL IT," cried the crowd gathered on November 18, 1095, in the northern French city of Clermont in direct response to Pope Urban II's entreaty that they come to the aid of their Christian brethren in the east. The Byzantine emperor Alexius I Comnenus, threatened by the growing power of the Seljuk Turks—who had already captured the important Christian cities of Antioch and Nicaea—had requested the pope's help to defend his territory and keep the Turks from his capital at Constantinople. What began with a request for military assistance turned into a campaign to defend Christendom and reinstate Christian control over Jerusalem, which had been ruled by Muslims for more than three centuries.

Tens of thousands of people—from armored knights on horseback wearing tunics emblazoned with red crosses to ragtag bands of poor peasants, some of whom branded their flesh with the sign of the cross—set off the following year on the arduous trek of nearly 2,000 miles to the Holy Land. Only a century later did they become known as Crusaders, from the French term for "way of the cross," and this first wave of Europeans was dubbed the First Crusade. After winning back Antioch and Nicaea, the Crusaders eventually seized Jerusalem on July 15, 1099, massacring all of its Jewish and Muslim residents—30,000 by one account—and leaving the city, holy to all three faiths, awash in blood.

The famously intolerant invaders established control over an area roughly the size of today's Israel and West Bank, which they called the Kingdom of Jerusalem. In their wake, an array of Europeans—nobles, mercenaries, criminals, and pilgrims, among others—primarily from France and Germany, flooded into the Near

This 13th-century French manuscript depicts the defeat of the Crusaders in 1187 at the Battle of Hattin by the Muslim leader Saladin. This established his military dominance in the Holy Land and triggered the Third Crusade.







An illustrated miniature from a Gothic manuscript shows Richard the Lionheart (left) defeating Saladin (right) four years after the Muslim ruler had taken control of the Holy Land.

East. For the next nearly 200 years, their power waxed and waned.

In the first century that they were there, they crowded into the region's cities and established farms and vineyards in the countryside. Then, in 1187, they surrendered Jerusalem to the Muslim military leader Saladin. For the second century of their occupation, they were largely confined to a thin coastal strip along the Mediterranean Sea. By the time the often-fractured Muslim forces united to drive out the last Crusader in 1291, the Europeans had launched six major assaults on the Levant. This violent collision of European Christians and Middle Eastern Muslims took a terrible human toll and created a deep-seated antipathy that reverberates to this day. It also exposed a provincial western Europe emerging from the Dark Ages to a wider world filled with ancient cities, erudite scholars, and a vibrant new religion. In turn, the Crusaders left an indelible mark in the form of nearly 100 castles found across the modern states of Cyprus, Egypt, Israel, Jordan, Lebanon, Syria, and Turkey.

These medieval fortifications, coupled with the few written accounts left by Christian and Muslim sources, have long painted the Crusaders as little more than aggressive invaders focused on murder and plunder and uninterested in creativity or innovation, says Adrian Boas, an archaeologist at the University of Haifa. But he and a new generation of excavators are now uncovering a more nuanced picture of Crusader life from digs in castles, rural settlements, and urban areas, learning what they built, ate, and drank, how they fought, and even how they were buried during their long sojourn in the East.

IN THE SUMMER OF 1187, Saladin's forces assembled on the shore of the Sea of Galilee 75 miles north of Jerusalem. The king of Jerusalem, Guy Lusignan, in turn, gathered his troops at a spring at Sepphoris to prepare for the battle. Sepphoris was considered the traditional site of the birth of Jesus' mother Mary, at which time it was a thriving Roman city, and it served as a strategic watering hole for Greek, Roman, Byzantine, Arabic, and Ottoman travelers and armies through the millennia. Crusaders had used the area on and off for more than a century.

As some 20,000 cavalry and infantrymen readied themselves, the barons argued over whether to venture out on the plain to the east to attack Saladin, or to remain in the easily defended camp. The king chose to attack, and thousands of men set out on an extremely hot July day, carrying a standard containing a splinter of what they believed to be the True Cross. Raymond III, Count of Tripoli, had argued against the attack, possibly because he had a covert agreement with Saladin to support him as the next king of Jerusalem.

Outnumbered, exhausted, and short of water, the Crusaders were quickly crushed. Accounts note that, after heavy fighting, Raymond and his men fled north to safety.

Guy Lusignan was imprisoned at Damascus, and by October, Saladin had captured Jerusalem, although he refrained from massacring the city's Christian population. Instead he expelled the Crusaders, who retreated to their coastal castles in Tyre and Tripoli in modern Lebanon. Europeans would

never again regain full control over the holy city. When Pope Urban III heard the news, he is said to have died of grief. His successor promptly called for another Crusade to recover Jerusalem.

JUST FOUR YEARS LATER, England's Richard the Lionheart defeated Saladin, recovering many of the coastal cities such as Jaffa, Acre, and Antioch. After nearly capturing Jerusalem, the English leader negotiated a settlement with Saladin, granting Christians limited control over the city and a strip of land leading to the Mediterranean. This agreement infuriated many Crusaders and Muslims alike, and the peace did not last. For the next century, the outnumbered Europeans resorted as much to diplomacy as to fighting to retain control over their shrinking piece of land along the coast. They also focused on constructing fortresses to ensure their domination of the ports crucial for resupply and reinforcement.

One of their most ambitious—and peculiar—works is located about 22 miles inland from Acre, the main Crusader stronghold on the coast. The castle, which sits high on a mountain, was built by the warrior monks of the Teutonic Order in the 1220s, a time when the Crusader kingdom was under increasing pressure from Muslim armies. These German men, who were typically of high status, had organized in Acre in 1190 to protect and care for Christian pilgrims to the Holy Land. They named the castle Starkenberg or “Strong

Mountain,” although today it is known by its French name of Montfort. It was designed not to protect the surrounding area, but to serve as a private headquarters, archive, and treasury for the wealthy order.

HAIFA UNIVERSITY'S BOAS launched an effort in 2011 to excavate Montfort, which today is found in the middle of an Israeli national park just south of the Lebanese border. A previous expedition had been undertaken in 1926 when New York's Metropolitan Museum of Art sent a team to recover a suit of armor for the collection of its Department of Arms and Armor. That effort failed.

The sprawling complex of Montfort sits at the top of a rock-cut road, deeply scored to prevent carts carrying building stones that could weigh up to 10 tons from rolling downhill, according to Rabei Khamisy of the Israeli Antiquities Authority, who grew up in a nearby village and now directs the excavations. It was partially demolished less than a half century after its construction by Muslims intent on preventing a Crusader return. By digging through tons of debris and rock, the team has documented the castle's design and decoration and cataloged a collection of small artifacts. The material they found contradicts the conventional view of Crusaders—and particularly of these warrior monks—as existing in crude conditions. Montfort, they discovered, was a formidable place of stylish living comparable to the fine manor houses and



Montfort Castle, high in the mountains of the Upper Galilee, was built in the 1220s by the Teutonic Order to serve as their headquarters.



An enormous stone wine press sits in the courtyard of Montfort Castle, evidence of the vineyards that were cultivated in the 13th century, as well as of the luxurious lifestyle of the Teutonic knights.

wealthier monasteries of its day in Europe.

The castle's central keep is now just a wide stone platform with a few ruined walls made of gargantuan stones, but it once soared another 100 feet into the sky. Underneath, the archaeologists uncovered deep cellars for stocking supplies. Above the cellars they traced the remains of a finely plastered white floor and decorative pilasters of a large hall, as well as a chapel with an elegant apse that is still partially intact. The third floor once held sumptuous apartments for the order's highest officer, the Grand Master. These boasted vaulted ceilings and frescoed walls decorated with gilded wood and punctuated with stained-glass windows, shards of which were found in the debris. "These were luxury accommodations," says Khamisy. In a courtyard below the central keep a stone-carved wine press large enough to fit a small car still sits, evidence that local vineyards covered at least some of the terrain in the thirteenth century.

Along the southern section of the castle's long outer wall, excavators working in a round tower in 2016 found an array of day-to-day artifacts, including iron waste from a forge and evidence of a workshop that turned bone into buttons and other objects. The discovery showed that there had been a thriving community of on-site artisans who supplied the

knights with manufactured goods. The team also recovered a large number of glass fragments from delicate drinking vessels, a board for Nine Men's Morris, a strategic game similar to checkers, along with the game pieces, and bones of European domesticated pigs, presumably brought by the knights to provide a taste of home.

On the mountain's northern slope, the outer fortifications are topped with the only surviving Crusader wall crenellations known in the Middle East. Near the gate in the outer wall, which included a portcullis that could be lowered in case of a threat, the excavators uncovered remains of elaborate rooms complete with flagstone flooring and high ceilings supported by double-arched wood beams. The rooms were littered with rusty bits of horseshoes, horseshoe nails, bells, spades, axes, and saddling buckles and bells, along with thirteenth-century coins. Clearly, these were the castle's stables. "Even the horses here lived well," adds Khamisy.

DESPITE THEIR SEEMINGLY impregnable mountaintop position, the end for the Teutonic knights at Montfort came quickly. The sultan Baibars, the Mamluk ruler of Egypt who had previously defeated the Mongol army at the Battle of Ain Jalut in 1260, took up Saladin's campaign to rid the region of Crusaders. By this point, the Crusaders' territories had contracted to just a few havens on the coast, and the castle was an isolated and vulnerable European outpost. Promised safe passage to Acre, the knights abandoned their headquarters after a two-week siege. Boas' team has unearthed more than 40 stones weighing more than a ton each that were hurled at the castle by the sultan's forces in 1271, as well as indications that some walls were undermined. The sultan had his men destroy much of the castle by burning so much wood that the resulting heat caused the building to collapse.

AS THE DEFEATED KNIGHTS marched to Acre under the watchful eyes of their Egyptian guards, a rival Christian order known as the Knights Templar still clung to control of an even larger and more ornate fortress. Built



A fragment of a stained glass window (above) that, along with frescoes and gilded wood, once decorated some of Montfort's well-appointed apartments, especially those reserved for the order's highest officers.

Athlit Castle was built by the Knights Templar beginning in 1218 to serve as a safe haven for pilgrims journeying to the Holy Land.



THE FRANKISH SETTLEMENTS



Among the warriors and pilgrims who arrived in the Middle East during the Crusades were European immigrants eager to begin a new life in a new land. Historians have long assumed that the vast majority of these people, typically called Franks though not all were French, huddled in well-protected towns and avoided the potentially dangerous countryside. Five previously excavated but newly reexamined Crusader-era settlements, all located just north of Jerusalem, are now beginning to reveal how these Europeans made their homes in rural areas as well. These towns have long puzzled archaeologists, who in recent decades have exposed twelfth-century homes built of sturdy stone walls, some more than six feet

This type of corbelled fireplace (top) from Boothby Pagnell house in England was duplicated in the Holy Land; (right), a drawing of the fireplace from a house in El Kurum, Israel.



Boothby Pagnell manor house in Lincolnshire, England (above) stands as an example of the style of 12th-century domestic architecture the Crusaders replicated in the Holy Land once they began developing settlements of their own there.

thick, packed together along a central road facing the street. This layout is unusual in the Near East, where central courtyards are the norm, and homes are rarely built against one another except in cities. The structures often had two stories and barrel-vaulted ceilings, rather than the one-story buildings with domed or flat roofs typical of the region.

Since the 1940s when these small towns were first excavated, archaeologists theorized that they were built during the twelfth century when the Crusaders were at their peak of power and a measure of peace prevailed around Jerusalem. But archaeologist Elisabeth Yehuda of Tel Aviv University

noticed that the buildings were themselves designed as miniature forts, with second stories accessible only by way of a narrow staircase or removable ladder, and therefore easy to defend from attack. She argues that the second stories were, in effect, temporary refuges in times of trouble.

While conducting research in European archives, Yehuda found examples of stone houses of similar design in urban Europe also dating to the twelfth and thirteenth centuries. Though not quite as fort-like as the Crusader structures, they reflected the growing prosperity of artisans and merchants through their sturdy construction and careful attention to detail. She then focused on the decorative corbelled fireplaces in the main room on the first floor of many of the Frankish



The so-called Jew's House in Lincolnshire, one of the earliest extant townhouses in England—dating to the mid-12th-century—is an example of two-story architecture copied by the Crusaders.

dwelling. These are unique in the Middle East, and she discovered they matched those of some well-to-do homes of the era in France and Germany. Used for heating and cooking, they signaled the wealth and sophistication of the owner at a time when open fireplaces were the rule. “They were showpieces,” Yehuda says. “It was the first thing you would see when you walked in the door.” Excavations also showed that residents of the settlements dined on fine tableware imported from around the Mediterranean.

The inhabitants of the Frankish settlements were neither peasants nor knights, says Yehuda, but skilled artisans and traders who intended to make this new land their permanent home. They also planned to maintain their European identity. “The settlers didn’t fuse with the local environment. They flouted their otherness in remarkable ways such as building in stone to say that they were here to stay,” she adds. They made a conscious choice to live in the countryside rather than living in the Crusader cities notorious for crowding and disease. —AL



A large number of horseshoes, horseshoe nails, and buckles have been found in the well-built stables of Montfort Castle. These horse trappings dating to the 13th century typify those used by western European knights.

50 miles south of Acre, on a rocky outcrop jutting into the Mediterranean, the structure, begun in 1218, was variously known as the Castle of the Son of God and Pilgrim’s Castle, and today is commonly called Athlit.

The Knights Templar, an organization far wealthier and more powerful than the Teutonic Order, was created in 1119 to guard and care for Christian pilgrims. These European knights maintained their headquarters on Jerusalem’s Temple Mount, known to Muslims as the Noble Sanctuary, until they were ousted in 1187. Nevertheless, they continued to expand their domain in the Levant throughout the Crusader era. They eventually became key financiers who garnered tremendous wealth and power in the Near East and in Europe until they were disbanded in 1307 by a jealous French king, Philip IV. Drawn to the area’s fertile fields, vineyards, and woods, and to the strategic harbor formed by a tongue of rocky land once used by Phoenicians more than 2,000 years before, the Templars built Athlit, a massive complex. To separate the



Krak des Chevaliers in western Syria was built between 1142 and 1271 and is largely intact. It is one of the most striking of the nearly 100 Crusader castles found across the Middle East.

mainland from the castle, they dug a wide, deep ditch that could be flooded with seawater from either side for defense, and then constructed a nearly 20-foot-thick wall that towered almost 50 feet high and was studded with watchtowers. An inner wall, twice as thick and reaching twice as high, protected the castle keep, which, according to contemporary sources, could house 4,000 soldiers.

Unlike their treatment of other Crusader forts such as Montfort, the Holy Land's Muslim rulers left Athlit largely intact after the Europeans departed for the last time in 1291. Its impressive walls, though damaged by earthquakes and stone robbers, are still plainly visible along the train line linking Haifa with Tel Aviv. Until recently, however, the site has been as inaccessible to archaeologists as it once was to the Muslim armies who, for nearly a century, sought to capture the European stronghold. The castle's ruins now sit inside the fences surrounding an Israeli naval commando base and are off-limits to civilians. Except for a brief British excavation in the 1930s, little research has been done on what Boas calls "the most remarkable and most notorious of Templar castles." In 2017, Vardit Shotten-Hallel of the Israel Antiquities Authority gained access to Athlit after lengthy negotiations with the Israeli military.

The only contemporary description of Athlit comes from Oliver of Paderborn, a German chronicler and religious leader

during the Fifth Crusade (1217–1221). He writes in his *Historia Damiatina* that Athlit's builders had conducted their own sort of archaeological excavations. They stumbled on an ancient wall and found, "by the generosity of God," a hoard of Hellenistic or Roman silver coins that helped pay off the cost of construction. The fortress, Oliver adds with maddening brevity, included a chapel, a palace, and "several houses." He also shares that the Templar Grand Master resided for a time at the castle, and that the French queen Margaret of Provence—the only woman to lead a Crusade, after her husband, the king, was captured in Egypt—gave birth there around 1250. The queen's apartments have yet to be identified. Later accounts mention that Athlit was the site of the Templar's prison in the Holy Land, where, according to a contemporary report, two men accused of sodomy were sequestered in irons. Shotten-Hallel's initial survey of the castle's eastern tower revealed a long, narrow room with walls pierced by holes. Bar-Ilan University historian Yvonne Friedman suspects this may have been the prison, and that the holes accommodated iron shackles.

Devout pilgrims may have formed the largest group of visitors to Athlit. With Jerusalem inaccessible to Christians during much of the thirteenth century, the castle may have served as an alternate pilgrimage destination. Nobles, soldiers, and mercenaries accounted for only some of the Europeans who traveled to the Middle East in this era. In

addition, thousands of pious pilgrims, from well-heeled merchants to penniless peasants, made the difficult journey in creaky ships threatened by storms and pirates in order to reach the Holy Land. The Catholic Church encouraged this flow by granting indulgences—remission of sin in the afterlife—to those who visited sacred sites there. According to the recollections of one pilgrim, the relics of the martyr Saint Euphemia were housed in the castle chapel at Athlit following their “miraculous translation” from Constantinople. After studying the chapel, which remains partially intact, Shotten-Hallel theorizes that it might have served as a kind of substitute Church of the Holy Sepulchre. The design, with a rotunda and twelve columns, resembles the Jerusalem shrine marking the place where Jesus is said to have been crucified and where his empty tomb is located. “It is as if they were creating a synthetic image of the holy city,” she says.

Athlit survived two major sieges and outlasted even Acre in the waning years of the thirteenth century as Muslim forces closed in on the increasingly isolated Crusaders. After the 1291 surrender of Acre, Athlit’s Templar defenders finally evacuated their fortress. They were among the last Europeans to leave the Holy Land. Most returned home, though a few Crusaders clung to the city of Tartus on the Syrian coast for another decade. The Kingdom of Jerusalem lingered on the island of Cyprus for another century or two, but efforts to use it as a launching pad for new Crusades failed. Those castles not destroyed by Muslim forces were repurposed to fend off future invasions. It would be another five centuries before a European army, this time led by French leader Napoleon, would again land on eastern Mediterranean shores. ■

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AN UNEXPECTED CEMETERY

Athlit Castle, which was built by the Knights Templar in the early thirteenth century, now sits inside the perimeter of an Israeli Defense Force training camp on the coast between Haifa and Tel Aviv. Its cemetery, the largest known Crusader resting place in the Middle East, lies just outside the camp’s fence. Here, over a period of about eight decades, the remains of thousands of people were buried in an orderly rectangular space a football field long, and almost as wide.

There are many unusual features of the Athlit cemetery that seem to contradict conventional thinking about European burial practices of the time. In the thirteenth century, the castle stood above a thriving town to the east and the fertile countryside beyond, but, unusually, the cemetery was located some distance away, close to the beach. Furthermore, all other known Crusader cemeteries, with the exception of one against Jerusalem’s walls, include a church or chapel—but not Athlit. In a 2006 survey, archaeologist Jennifer Thompson, then of Cardiff University, speculated that the cemetery was in use before the town and its church, which may never have been completed, and remained the sole place for burial through the life of the community.

And while Crusaders in other locations—like most medieval Christians—typically were interred with their feet facing east, in anticipation of Christ’s return from that direction, Yves Gleize of the University of Bordeaux, who has been excavating the cemetery for the past four years, notes that the Athlit burials are gen-

erally oriented with their heads to the castle and their feet to the northeast.

It is the number of burials, however, that is most exceptional. British archaeologist C.N. Johns, who excavated the site in the 1930s, counted 1,700 graves, but Gleize puts the number at a minimum of 5,000, and perhaps as many as 8,000. “That means an average of five or so dead per month, which is too many for just the castle or even town inhabitants,” he says.

There is little doubt the graves are from the brief period between 1218 and 1291, given the thirteenth-century coins and potsherds Gleize has uncovered, but where all those people came from remains unclear. They were almost certainly Europeans, as Gleize has determined that the

Athlit dead were primarily buried in shrouds and lowered into pits that then were covered with a lid anchored with stones, the common method in France in that period. Some may have been pilgrims who chose to be buried at Athlit, perhaps due to the proximity to relics in the castle’s chapel, as might be the case of a man in his 50s found with his arms folded over his chest and his hands in what may have been an attitude of prayer. Metal pieces found next to his skeleton likely were part of a staff, a common accessory for pilgrims and the first example found in the region. Others may have been victims of violence, such as a man with a bashed skull and an arm injury that seems to have been inflicted by a heavy sword. Gleize speculates he could have been a Templar victim of a Muslim siege. —AL



A stone slab decorated with a sword marks one of the thousands of Crusader-era burials recently discovered at the cemetery associated with Athlit Castle.

People of the White Tiger

**In southwestern China, a man's richly
furnished grave reveals how identity can
persist even in a time of great change**

by DANIEL WEISS





A pendant, ring, and disc (above, left to right) are among dozens of jade items excavated from a grave in rural Chongqing, China. They indicate that the man buried there had connections to powerful members of the Qin Dynasty or early Western Han Dynasty.

FOR MUCH OF THE first millennium B.C., China consisted of a patchwork of powerful states competing for supremacy. Among these were the Qin, who would go on to found the first unified Chinese empire, and the Han and the Chu, who would battle over the right to succeed them. During this long period of struggle, smaller kingdoms tended to be swallowed up by larger ones. It might seem unlikely that any of the smaller kingdoms survived under these circumstances, much less thrived. But the Ba kingdom of eastern Sichuan did both, despite its vulnerable location within striking distance of all three of these much more powerful states. The grave of a member of the Ba's ruling class speaks volumes about how the Ba negotiated their way through this tumultuous era.

The Ba left no written records, and so are known largely through what later Chinese sources wrote about them and through the contents of their graves. Archaeologist Gang Fang of the Chongqing Municipal Cultural Heritage Research Institute has led a team exploring a Ba cemetery above Xiaotian Creek, in a rural area of ancient Sichuan. "The type of artifacts unearthed from the Xiaotian Creek cemetery suggests that those buried there were from the highest rank of the Ba people," says Fang. One of these graves contained a vast array of artifacts, including an arsenal of bronze weapons, several bronze bells, and numerous jade ornaments and pendants. According to Fang, the burial dates to the Qin Dynasty (221–206 B.C.) or the early Western Han Dynasty (206 B.C.–A.D. 9), when many minority groups like the Ba were under tremendous pressure to assimilate into the ascendant imperial culture.

With a handle in the shape of a tiger baring its teeth, this bronze bell (opposite), called a *chunyu*, depicts the Ba's totem animal. Instruments like it were used to set a marching or dancing beat in warfare.

THE BA WERE A confederation of five tribes who were renowned as ferocious warriors and fought for hundreds of years to maintain their position in the hilly terrain of eastern Sichuan. Lin Jun, the founder of the dominant Ba tribe, is said to have turned into a white tiger—an animal thought to watch over weaponry and warfare—after his death. The Ba worshipped the feline as a totem throughout their history. Tigers are depicted as part of many traditional Ba artifacts, such as the *chunyu*, a bell shaped like a chef's hat that typically has a handle in the form of a crouching tiger



A bronze bell known as a *zheng* found in the grave is of the sort used by the Ba people, who lived in eastern Sichuan, to send signals during battle.

with bared teeth. "These bells can project loud sounds, so they most likely used them to create a beat for marching or dancing during battle," says Jay Xu, director of the Asian Art Museum of San Francisco. "They would dance before they launched their assaults, perhaps to confuse or instill fear in the enemy."

War became a way of life for the Ba largely because they were constantly threatened by neighboring peoples. Among the earliest definitive references to the kingdom, dating to the eighth century B.C., is one describing the Ba paying tribute to the Qin, whose domain was north of Sichuan across the Qinling Mountains. The Ba hoped this would provide a measure of protection against the Chu, who were encroaching on them from the east. Having been pushed west by the Chu during the Spring and Autumn Period (770–ca. 475 B.C.) and the early Warring States Period (ca. 475–221 B.C.), the Ba frequently clashed with the Shu, who were based in western Sichuan. In 316 B.C., the Qin invaded Sichuan and conquered both the Shu and the Ba. Jay Xu says that the invasion was largely aimed at the Shu, who had much richer agricultural land than the Ba, as well as access to valuable resources such

An extensive cache of bronze weapons was unearthed from the grave, including (clockwise, from immediate right) a halberd, spearhead, dagger-ax, and battle-ax. The halberd's presence suggests the Ba adopted imperial styles, while the other weapons show they maintained their own traditions.





as copper and salt. “The Qin were on much easier terms with the Ba, and the Ba did not really intervene in this conflict,” he says. “That paved the way for a much more benevolent type of control.”

For almost a century, the Qin used their control of the Shu as a trial run for how they would rule the rest of China when they established its first unified empire, which they did in 221 B.C. Large numbers of people from elsewhere in China were forcibly moved into Shu territory, leading to a breakdown in local traditions and an increase in centralized state control. The Qin also implemented a network of spies designed to detect any sign of rebellion. Through it all, the Ba were allowed to continue ruling themselves with much less oversight. “Since the Ba occupied such difficult terrain,” says Jay Xu, “the Qin may have considered it smarter to just leave them alone.”

When the Qin Dynasty fell into chaos and collapsed just over a decade after it was founded, a warlord named Liu Bang, the king of Han, moved to fill the power vacuum. Like the Qin, Liu Bang first took control of Sichuan. This gave him access to the region’s natural resources and manpower, including Ba warriors, enabling him to fend off his major rival, the Chu. After the Western Han Dynasty was established under Liu Bang, Ba soldiers were accorded a special place in its army. Even while serving in a conquering power’s armed forces, they were permitted to keep their own practices for centuries to come, says Arlen Lian of the Chinese National Academy of Arts. “Throughout the Han Dynasty,” Lian explains, “the Ba people maintained their own cultural individuality and were relatively independent.”

Ba martial customs were even incorporated into Han imperial court ritual. Among the palace musical ensemble were several dozen Ba musicians who clanged bells to the same rhythm they had marched to when fighting at the side of Liu Bang in the dynasty’s founding battles.

THE CONTENTS OF THE grave at the Xiaotian Creek cemetery reflect both the continuity of Ba traditional culture and the strong ties between Ba leaders and the Qin and Western Han Dynasties. A number of artifacts refer specifically to

A long bronze sword inlaid with jade was likely a gift from an imperial official and provides evidence that the grave’s occupant came from the upper echelons of Ba society.



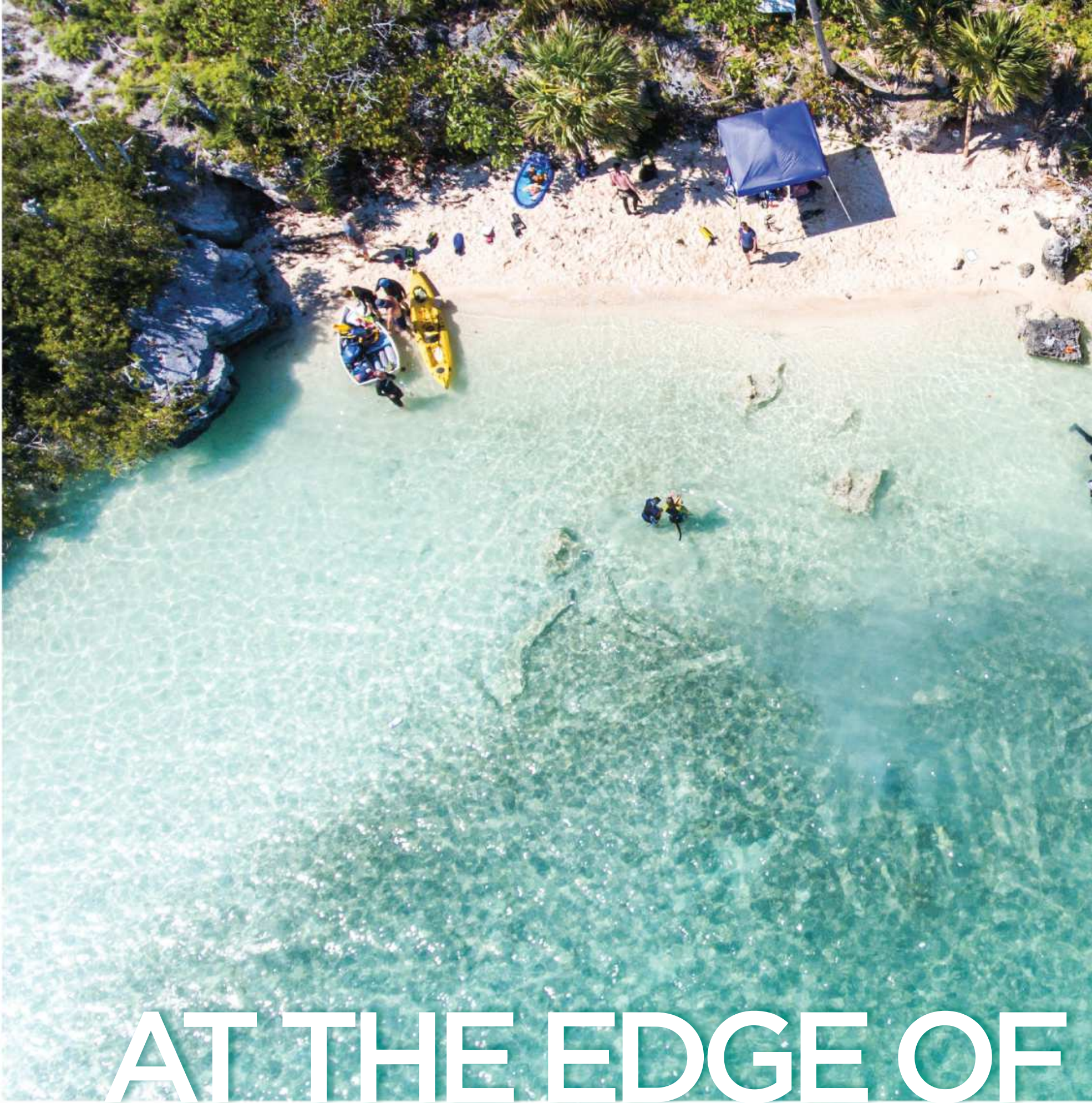
This jade pendant depicting a pair of back-to-back dragons was part of a set, the first of its kind to have been discovered in a Ba grave.

the Ba people’s totem animal, including a tiger-handled chunyu bell and three short swords decorated with a tiger-stripe pattern. Inscribed around the bell’s handle are six symbols, including a bird and a fish, which Fang believes represent two of the other tribes in the original Ba confederation. Other Ba weapons in the grave include a set of spearheads, several battle-axes, and a dagger-ax. A handheld bell called a *zheng*, also found in the grave, was, like the chunyu, of a type used by the Ba to transmit signals during battle.

Buried alongside these traditional Ba items were several halberds, a crossbow, and a set of stemmed bowls, all made of bronze, and all evidence that the Ba had begun to adopt styles associated with the Qin and the Han. However, it is the jade items—more than have been found in any other grave in the Xiaotian Creek cemetery—that provide the most striking evidence of connections to the imperial rulers. These include two jade-inlaid long swords, as well as dozens of jade pendants, discs, rings, and ornaments. “Jade is very rare in Ba graves,” says Fang. “Only the highest-ranked nobles could enjoy it.” Some of the jade pendants, including one featuring a pair of back-to-back dragons, were part of a set, the first of its kind to have been found in a Ba grave. Fang notes that these pendants, which were laid out on the man’s skeleton, were likely to have been gifts from either a Qin or Western Han official.

Elements of Ba culture persisted for centuries after this Ba luminary was laid to rest—and may endure to the present day. Jay Xu points out that some areas formerly inhabited by the Ba, including the Three Gorges region along the Yangtze River, are now home to an ethnic minority named the Tujia, who some believe to be descendants of the Ba. The Tujia are renowned for their skill at dancing, he notes, and many continue to worship the white tiger in honor of their legendary ancestors. ■

Daniel Weiss is senior editor at *ARCHAEOLOGY*.




AT THE EDGE OF

BERMUDA APPEARS ON MAPS as a tiny speck in the middle of the vast Atlantic Ocean. The coast of North Carolina, roughly 700 miles away, is the nearest landmass. The island is renowned for pink sand beaches, turquoise water, and time-honored British traditions such as afternoon tea and cricket. England officially colonized Bermuda in 1612, three years after a ship bound for Jamestown wrecked on the island and deposited its first permanent inhabitants.

During the age of sail, from roughly the sixteenth through the mid-nineteenth centuries, Bermuda benefited from relative equidistance to nearly all of England's American possessions, as well as to the booming trade markets of the Caribbean. It also

served as a crucial navigational marker for mariners traveling between Europe and the Americas. Lucky pilots who passed safely by Bermuda's perilous reef system knew they could begin to bear east toward the Iberian Peninsula or south toward the Antilles. The unlucky, whose numbers are unknown, crashed onto the reefs, condemned to the depths or to castaway survival on what was, until English settlement, an uninhabited island. Even after colonization, Bermuda was a challenging place to live. It had no source of fresh water and was covered in impenetrable jungle. Travel was easiest in small boats, of which few were available. The isolated population was largely dependent on the regular arrival of supplies sent by the Somers Isles Company, which administered the young colony as the Virginia Company



Archaeologists survey the site in Ely's Harbour, Bermuda, where scattered timbers from a 17th-century sailing ship are visible.

The remains of a 400-year-old ship off Bermuda are refining the history of the island's earliest inhabitants

by MARLEY BROWN

THE NEW WORLD

did Jamestown. In fact, the two ventures often operated in tandem, sharing many of the same leaders and investors.

Bermuda's early years are well documented. Nathaniel Butler, the island's third governor, wrote a detailed account of the colony's history spanning the period from 1609 to 1622. If his account is true, early Bermuda was a regular port of call for pirates and privateers, mostly English captains hunting wealth-laden Iberian vessels in the Caribbean. Butler—himself a veteran privateer—describes the comings and goings of several pirate vessels to and from the island. One of these, a Dutch ship that is recorded to have wrecked on the island's western reefs in August of 1619, may have played a crucial role in both the cultural and economic development of Bermuda.

Researchers believe they may now have discovered the remains of that very ship after nearly 400 years.

BRADLEY RODGERS, DIRECTOR OF a cooperative project between East Carolina University and the National Museum of Bermuda, first came across the site while boating in Ely's Harbour on the island's west end in 2008. "We noticed timbers lying in very shallow water," Rodgers says. "When we investigated, we realized that the pieces looked ancient, but were in incredible condition." This inconsistency continued to intrigue Rodgers while he was at work on other projects and, finally, in 2017, the initial site survey began.

"Judging by how the pieces were put together, theoretically,



This ca. 1630 Dutch map of Bermuda is based on property surveys conducted on the island between 1616 and 1617, just five years after the colony's official founding.

this looked to be a very early wreck, but we couldn't reconcile that with the fact that the wood itself was in such great shape," Rodgers says. Both that and the ship's design presented something of a conundrum. "We saw parts that don't really fit with other vessels that we've seen in Bermuda from this period," says Rodgers. "They didn't look French, they didn't look British, and they didn't look Spanish." Rodgers explains that it was not until he identified remnants of what had been floors and side futtocks (middle pieces of a ship's frame) that he was able to piece together what the bottom of the ship and the curvature of the sides had looked like. He then determined that the design was northern European, most likely Dutch. "Dutch ships of this time are characterized by very flat bottoms," he says. They did not feature sharp angles of elevation, called dead rise, which were common in other European shipbuilding traditions of the period, and their hulls narrowed considerably above the waterline. Rodgers explains that ships were built this way so they could pass through narrow Dutch waterways and shallow harbors.

In order to solve the mystery of why the 400-year-old timbers are still so strong and intact, the team took a small sample of the wood and sent it for chemical analysis. Tests concluded that the ship was made from an unusually dense hardwood native to northeastern South America called greenheart, which is prized for its resistance to both rot and insects, and is still used in maritime contexts to this day. "This is basically the densest wood on the planet and nothing can really eat it," Rodgers says. "It just stays looking pristine. So that was the answer to that." The results also supported the team's theory that the ship was Dutch, because, at the time, the Dutch were occupying and gaining control of territory in northern South America, where they could grow and harvest greenheart.

Historian Michael Jarvis of the University of Rochester says, "If it is the Dutch wreck described, it would have arrived just after August 12, 1619. The ship made for Bermuda in search of

food and ran up onto the west end reefs. What Butler suggests is that local Bermudians living there probably could have kept the ship afloat and saved it, but instead deliberately let it sink so they could claim it as wrecked goods." According to Rodgers, there is ample archaeological evidence that the Dutch vessel was rigorously salvaged. "This thing had been so thoroughly taken apart," he observes. "I've never seen a ship like this. Not one single piece was connected to another. We had to model out of clay every part that we documented and sit there with it like a jigsaw puzzle." The team eventually realized that this ship was much larger than the timbers left behind would lead one to believe. "We can tell from the rudder that it was around 120 feet long by 30 feet in beam," says Rodgers. They also discovered chop and hack marks all over the remaining timbers, as well as evidence that salvagers employed heavy pins, sledge hammers, and metal bars to pry the frame apart.

The fact that such a large ship managed to be transported over the shallow reefs into the harbor where it now rests also leads Rodgers to believe that considerable effort was taken to lighten the vessel. "The easiest explanation I can give for how a ship of this size could have wound up in the harbor is that it was dragged in," he says. "It shouldn't have been able to make it in over the reef at all, but, if our theory is correct, it's of Dutch make and has a really flat bottom with a shallow draft. They also must have taken off all the guns and thrown the ballast overboard." Rodgers notes that the location of the ship would have kept the salvaging operation concealed from the authorities. "This was a perfect place to just run it up on the beach and take it apart at their leisure," he says.

Elena Strong, executive director of the National Museum of Bermuda, adds that relatively little is known about salvaging activities in Bermuda during this time, though judging by the more than 300 wrecks from various periods littering the island's waters, the colony's early inhabitants must have benefited from more than an occasional windfall of recovered goods. "The remains of this ship may be able to provide us some insight into the economics of salvage in the early settlement of Bermuda, which has never really been explored," she says. "It is a fascinating window into how a very isolated group of people survived in precarious circumstances."



THE SHIP'S CREW are all reported to have survived. In his history, Butler describes their vessel as "a handsome pinnace manned mostly with Dutchmen, along with two or three Englishmen on board." Rodgers says that the Dutch built pinnaces as armed

A painting by Anthony van Dyck depicts Robert Rich, 2nd Earl of Warwick. Rich financed privateering enterprises in the 17th century, some of which operated from Bermuda.



Just feet from the beach, the team documents the wreck. Researchers believe the vessel was dragged into shallow waters before being salvaged for parts and cargo.

escorts for merchant flotillas, but their combination of speed and armor made them especially appealing to pirates. “The Dutch word for pinnace at that time just meant warship,” he explains. “Ours is a sizable ship, not a single-mast thing out there sailing alongside a larger boat, as pinnaces are often defined.” Butler writes that the men had waited a long time in the Caribbean for plunder but had taken no prizes. Short on food, they decided to head for Bermuda at the suggestion of the Englishmen on board. Once safely on land, they were forced into indentured labor for at least a year before being repatriated to Europe.

One crewmember, however, a Dutch shipwright by the name of Jacob Jacobson, appears to have remained in Bermuda for much longer. Researchers believe he is the founder of a Bermuda shipbuilding tradition that created both the Bermuda sailing rig, a common mast and rigging configuration for sailboats to this day, and the Bermuda sloop, a single-masted sailing ship renowned for its speed that was used by traders and smugglers in the seventeenth and eighteenth centuries. Says Jarvis, “I call Jacobson the father of the Bermuda sloop, which relies on a Dutch design from the late sixteenth to the early seventeenth century.” According to Jarvis, Butler employed Jacobson to build desperately needed boats for transportation around the island and provided him with local apprentices, some of whom may have arrived in Bermuda from England as indentured servants. “He not only transferred the technical knowledge, but also trained the next generation of shipwrights, who spread this knowledge and kept it alive,” he says.

Also on board were two men described by Butler to have been from Africa or of African descent. Clarence Maxwell, a

historian at Millersville University, explains that many of Bermuda’s first African inhabitants were brought to the island by privateers, who captured them from Iberian vessels at sea or from settlements in Spanish America. “The activity of privateering goes hand in hand with the arrival of Bermuda’s first black population,” he says. By the end of the 1620s, at least four ships had brought as many as 100 Africans to the island. Perhaps the most notable of these events occurred in 1619 when the privateer ship *Treasurer* arrived in Bermuda carrying individuals captured from the Portuguese slave ship *São João Bautista*, which had departed Angola earlier that year. *Treasurer* captain Daniel Elfrith had coordinated the raid with a fellow privateer named John Colyn Jope. They split the prize, and Elfrith delivered his share of the captives to Bermuda. The rest, whom Jope brought to Virginia on his ship *White Lion*, are thought to have been the first Africans in English North America.

Maxwell notes that in Bermuda, like elsewhere in England’s early seventeenth-century colonies, the status of enslaved or indentured Africans was often unclear, though it was readily apparent that they were not free. It was not until later in the century, when the English began to take on a larger role in the transatlantic slave trade, that a legal framework for enslavement was established. Before that time, Maxwell says, privateers based in Bermuda preyed specifically on Spanish and Portuguese slave ships. They did so, in part, in an effort to acquire a labor force experienced in cultivating tropical crops, and, particularly, with expertise in growing tobacco, knowledge which some had acquired in Spain’s American colonies. “Enslaved African arrivals to Bermuda during the early 1600s were fundamental to the success of the fledgling colony and the survival of the colonists,” he says. “They were responsible for the introduction of vital foodstuffs required to stave off starvation, as well as effective agricultural management to sustain the growing population.” Maxwell and other historians of Bermuda argue that kin and trade networks built by black Bermudian mariners around the Atlantic maritime world—which date back to the period of the first African arrivals in the colony—have also contributed greatly to the island’s economic success.

THE AGE OF PRIVATEERING in Bermuda was not to last long. Fears of Spanish retaliation and the triumph of a faction within the Somers Isles Company that wished to establish Bermuda as an exporter of tropical commodities rather than a way station for buccaneers spurred a change in the island’s economy. For much of the seventeenth century, the economy revolved around farming. “By 1621, the more commercial side of the company had outlawed privateering and support of privateering lest Spain deliver a reprisal against Bermuda and Virginia and wipe out both of these English colonies,” says Jarvis. “But it’s this early maritime marauding moment that this Dutch shipwreck, if it is the August 1619 shipwreck, brings to our attention. It’s sort of like the ‘what if’ of history—the path that Bermuda didn’t take, but was very much on its way to taking.” ■

Marley Brown is associate editor at ARCHAEOLOGY.

THE MARKS OF TIME

A six-week heat wave in the U.K. and Ireland exposes nearly 5,000 years of history

Sometimes, as happened in the summer of 2018, the less visible past reveals itself, just for a moment, and then quickly vanishes.

ON VERY RARE OCCASIONS, during unusually hot, dry summers, normally hidden features can appear on the landscape. This can occur in two ways. Areas where the remains of buildings lie just underground or where a stretch of land has been repeatedly walked upon are always drier. During a heat wave, vegetation there will wither more quickly, creating brown parch marks that contrast with the surrounding grassy areas. Most of the sites here follow

this pattern. By contrast, more moisture collects in areas that in antiquity were taken up with ditches or were dug in other ways. In a heat wave, those areas will remain greener than the surrounding landscape. Such is the case with the Neolithic monument in Ireland's Boyne Valley and the medieval castle in Wales.

As these conditions persisted this past summer, archaeologists, with the help of aerial photography, drones, and the eyes of the public and scholars alike, were able to document evidence of buildings and human behavior that have rarely, if ever, been seen before. The heat wave is over and the rain has come again. At least for now, many of these traces of the past are no longer visible.

1 LATE NEOLITHIC MONUMENT BOYNE VALLEY, IRELAND

Brú na Bóinne, or the Palace of the Boyne, on Ireland's east coast, features an astounding concentration of prehistoric monuments. More than 90 are known in all, and summer 2018's scorching weather has added yet another—only traces of which were seen in a previous lidar survey. Located just north of the River Boyne, the new monument dates to 2900–2500 B.C. and became visible in pits, postholes, and sections of ditch.

The monument, which likely served as a site for rituals, features a circular double ditch broken up into sections. The entire complex is surrounded by a double ring of timber posts. "The posts may have been connected in some way to create a wall or fence," says archaeologist Stephen Davis of University College Dublin. Sectioned ditches are nearly unknown in the late Neolithic, according to Davis, and while double rings of posts dating to the period have been found in Scotland, they had never before been found in Ireland. A box-shaped structure on the monument's western side once had particularly large posts, and may have served as an entrance. Davis notes that the newly discovered monument probably had some relationship to another one just to its southeast, which also appeared this summer as a wide, desiccated ring marking what was once an earthen or stone bank.—*Daniel Weiss*

2 WWI MILITARY CAMP HAWICK, SCOTLAND

In the very early years of the twentieth century, the Stobs Military Camp served as a training ground and living quarters. Just before World War I, it was the place where Scotland readied for combat. And during the war, it became a POW camp where both civilian and military prisoners were housed in 80 wooden huts that each measured 120 by 20 feet and were surrounded by barbed wire. Stobs eventually closed in 1957, and its layout is reasonably well known from the master plan drawn up in 1917. According to Andrew Jepson of Archaeology Scotland, however, parts of the camp that hadn't been seen in many years became evident during summer 2018's heat wave. "We clearly knew that the building foundations and networks of paths were there, but over the decades they had become difficult to identify in some areas as nature began to reclaim the land," says Jepson. "An attempt to locate precisely some of the corners of the barracks hut foundations last year proved relatively unsuccessful," he adds, "so we were excited to see so much of the camp appear before our eyes."—*Jarrett A. Lobell*



3 MEDIEVAL CASTLE CEREDIGION, WALES

The raised earthwork motte, or mound, of Castell Llwyn Gwinau, a medieval fortification that sits atop an isolated hill in western Wales, is about five feet high and some 100 feet in diameter. This remote spot is not obviously strategic, and it is possible the tenant of a nearby farmstead built the castle simply to signal his position as a knight. Although the location of the castle was known, the drought made its layout clear. Brown sections at its summit likely mark the remains of a stone wall, and a green ring indicates its ditch. The Royal Commission on the Ancient and Historical Monuments of Wales discovered at least 100 sites during the heat wave. “So much new archaeology is showing, it is incredible,” says Toby Driver, the commission’s senior aerial investigator. “The summer’s urgent work in the air will now lead to months of research in the office in the winter months to map and record all the sites which have been seen and to reveal their true significance.”—*Eric A. Powell*

4 WWII AIR RAID SHELTER CAMBRIDGE, ENGLAND

During the Second World War, Cambridge, like most of England, was under threat of aerial bombardment. The first daylight raids over the country took place in June 1940, and they continued throughout the remainder of the war, killing some 40,000 civilians. Though Cambridge itself was not badly hit, the city experienced 424 air raid alerts during which high-explosive bombs, oil bombs, and other incendiaries were dropped, killing 29 people. Some of the city’s residents may have hidden in a concrete air raid shelter built under the green of Jesus College in 1939. Its outlines are an unexpected reminder of the war only recently made visible.—*Jarrett A. Lobell*

5 ROMAN FORT CAERHUN, WALES

Canovium was one of a network of wooden forts that housed tens of thousands of troops during the Roman invasion of Wales in the first century A.D. Around A.D. 120, when many of these soldiers were shipped north to work on Hadrian’s Wall, Canovium was among the forts in Wales made permanent and rebuilt in stone. This past summer, evidence of these stone walls appeared, with just the northeast corner obscured by a still-active medieval parish church.

Based on previous excavations and historical sources, says archaeologist Peter Guest of Cardiff University, the fort is known to have been home to an auxiliary unit. Its 500 soldiers were drawn, at least initially, from recently conquered peoples—most likely Batavians, Gauls, or Thracians. “The fort was occupied for 200 years or more,” says Guest. “It wouldn’t be surprising then if a number of the recruits that lived there grew up just outside the fortress. They were the sons of existing soldiers and the grandsons of soldiers before them.”—*Daniel Weiss*

6 COUNTRY HOUSE DERBYSHIRE, ENGLAND

A garden design dating back to 1699 has been revealed in the withered lawns of Chatsworth House, one of England’s grandest stately homes and the seat of the Duke of Devonshire, a title held by members of the Cavendish family. Oliver Jessop, Chatsworth’s archaeological consultant, says, “The recent heat wave has provided an opportunity to capture details about the intricate layout of the gardens on the south lawn and elsewhere on the property.” Jessop directed a survey of Chatsworth as part of major restoration and renovation project due to be completed at the end of 2018. The house and its grounds, including an elaborate fountain carved between 1688 and 1691, are part of this work.

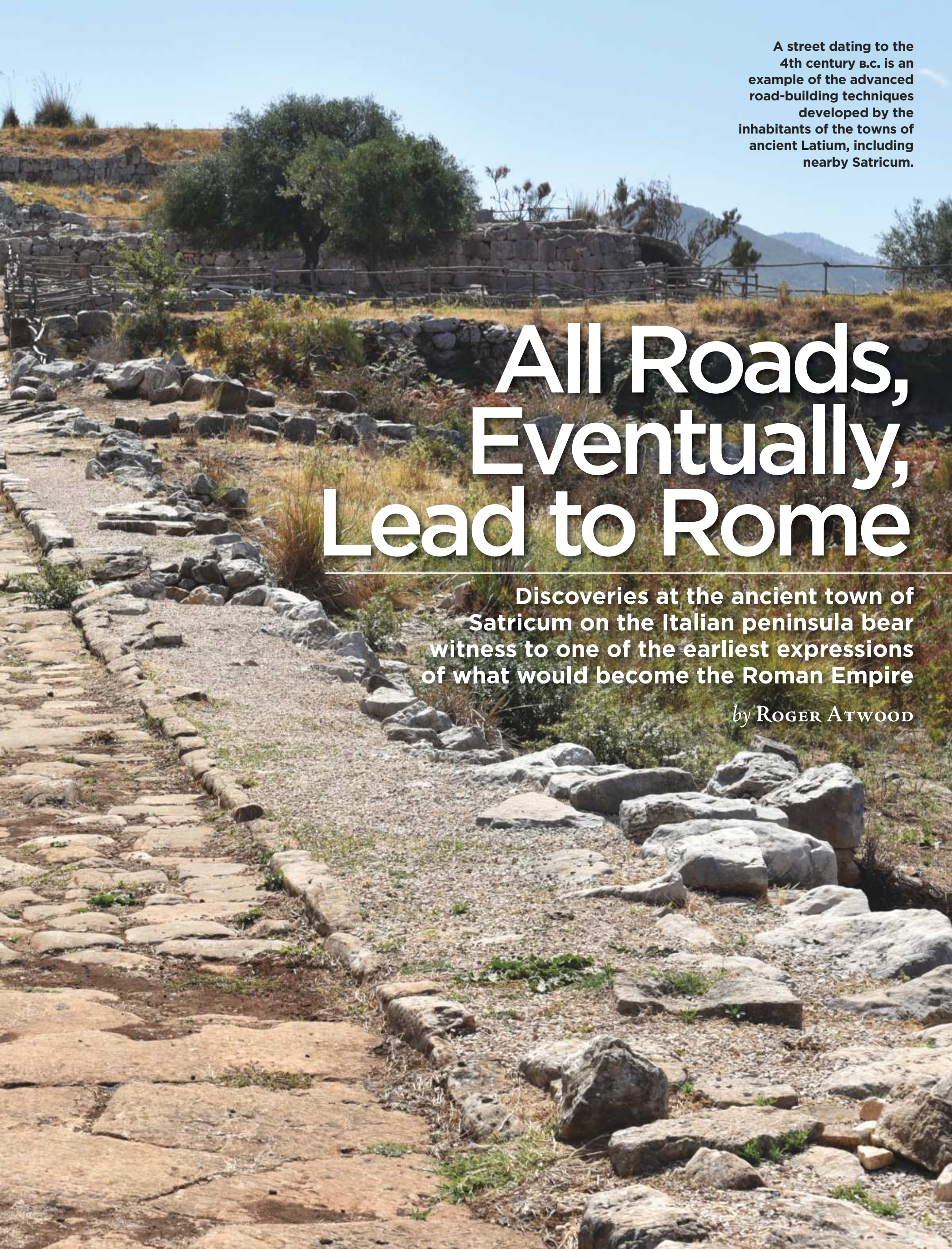
Among the features that were discernible in summer 2018 were routes of stone-lined drains that may help researchers interpret how the layout of planting beds, fountains, and footpaths changed over the centuries. According to Jessop, the Cavendish family was at the forefront of the Baroque tastes in garden architecture of the day. “The family employed leading designers to ensure that the settings of their houses were in keeping with trends and fashions,” he says. “In terms of scale and grandeur, Chatsworth was at times directly comparable to the royal palaces in London and elsewhere in Europe.”—*Marley Brown*

7 MONASTERY DOORWAY COUNTY GALWAY, IRELAND

At the ruins of Kilmacduagh Monastery in Ireland’s County Galway, an unusual parch mark emerged outside a blocked doorway. Before that doorway was walled up, however, the passage, dating to the eleventh or twelfth century, once served as the entrance to the monastery’s cathedral. But in the fifteenth century, a new doorway was added to the monastery, and the old one likely filled in at that time. By then, generations of monks had entered the church through the earlier door, tamping down the earth outside. Now, more than 500 years after the entrance was sealed, grass still dies more quickly here during extreme dry spells, marking the monks’ ancient path.—*Eric A. Powell*







A street dating to the 4th century B.C. is an example of the advanced road-building techniques developed by the inhabitants of the towns of ancient Latium, including nearby Satricum.

All Roads, Eventually, Lead to Rome

Discoveries at the ancient town of Satricum on the Italian peninsula bear witness to one of the earliest expressions of what would become the Roman Empire

by ROGER ATWOOD

WHEN ROME'S LEGENDARY cofounder Romulus invited the chieftains and families of an Italic people known as the Sabines to a religious festival, he also invited a group of Latins. The Sabines lived in the central Apennine region of Italy, while the band of Latins were from the hilly farmland south of Rome. Once everyone was comfortable, Romulus ordered his men to abduct the Sabine women. The so-called Rape of the Sabine Women, as described by the ancient Roman historian Livy, sparked years of warfare between Rome and the Latins and Sabines. While modern historians cannot be certain of the accuracy of this tale of a dinner party gone wrong, the story captures the contentious state of relations among the various groups vying for power on the Italian peninsula in the first millennium B.C. These earliest inhabitants of Rome came to realize, as Rome began to swell with immigrants and territorial ambitions, that central Italy was not large enough to accommodate more than one dominant people. It was a time, however, also defined by shared cultural and artistic influences, all of which ultimately set the stage for the growth of Rome from a farming town of a few thousand people on the Tiber River to the largest empire of the western world.

Archaeologists working near Rome have found that early Italian states ebbed and expanded at each other's expense for centuries. Sometimes Rome won, sometimes it lost. "Roman expansion wasn't a cultural zero-sum game. There were winners and losers on both sides," says Anthony Tuck, an early Roman specialist at the University of Massachusetts Amherst. "The surviving historical narratives tend to focus on militarized territorial expansion because republican Romans saw that as worthy of description. The archaeological record, however, suggests a more nuanced and socially complicated picture." Well before the Roman Empire extended from England to the Middle East, before the aqueducts and roads, before the Colosseum and gladiators, and even before the Roman army, central Italy was a landscape filled with diverse tribes, each with its own identity, at least before they were eventually subsumed by Rome.

FEW PLACES REVEAL the complexity of Rome's neighbors better than the town of Satricum, 40 miles south of Rome in the region known in antiquity as Latium, and now as Lazio. The archaeological record uncovered there by four decades of excavation conducted by Dutch teams from the University of Amsterdam tells a story of cultural interactions and affinities, war and peace. Excavations have also uncovered paved roads—some of the first in the region—suggesting Satricum played a role in the development of these public works long synonymous with Rome.

At a dig site carved out of a lush vineyard, archaeologist Marijke Gnade of the University of Amsterdam has been excavating evidence of the history of Satricum as it played out in Rome's shadow. The original settlement dates from at least the Iron Age, early in the first millennium B.C. Over the next 500 years or so, Satricum grew into a bustling trading town of several thousand people, about the same size as Rome at the time. In those centuries, Satricum's residents were Latins. They lived in wattle-and-daub houses, often large and well-furnished, with multiple rooms. They shared many cultural traits with the Etruscans, their neighbors to the north and,



The excavation of the shrine of Mater Matuta in Satricum by a team from the University of Amsterdam is now complete. The shrine was an important destination for at least five centuries for pilgrims who traveled from throughout central Italy.



An inscription on a block discovered at Satricum's Mater Matuta shrine honors a Roman consul, suggesting that strong ties existed between the two settlements in the 6th century B.C.

like them, the Latins of Satricum prospered and developed a taste for trinkets imported from the east that had become available as a result of the Mediterranean's newly flourishing trade ties. With an increasingly cosmopolitan outlook, they started building sturdy stone houses with red-tiled roofs, stocked with both imported and locally made pots, tools, and adornments. Most significantly, Satricum was a place of worship, and pilgrims came from all around central Italy to visit and pay homage at Satricum's temple to the goddess Mater Matuta. At the same time, Rome's cultural and political influence was beginning to be felt by all.

IT REMAINS UNCLEAR how much of Rome's expansion was driven by war, as Livy's histories claim, and how much by the more-or-less peaceful spread of cultural influences. An inscription carved in a stone building block offers an intriguing hint about the relationship between Satricum and Rome. Found by the Dutch team during the first week of their first excavation at Satricum in 1977, the block contains the words "*iei steterai popliosio valesiosio svodales mamartei*," meaning, roughly, "This is dedicated by the companions of Publius Valerius to Mars." Mars was the Roman god of war, and the words seemed to confirm the presence of Publius Valerius ("*popliosio valesiosio*"), described by later Roman historians as one of the first consuls to assume power after the last king of Rome, Tarquinius Superbus, was overthrown in 509 B.C. and the Roman Republic was established. Because Publius Valerius appeared only in accounts written a few centuries later, modern historians had never been certain that he had actually existed. But the Satricum inscription, which likely graced a monument dedicated to the consul by his local supporters or henchmen, provided proof, or at least a strong suggestion, that he was a historical figure. No other fragments of the inscription have been found, and it remains one of the few

texts of any kind from that period. Enough survives, though, to suggest that Satricum already had political ties with Rome—the city that, two centuries later, would swallow it up.

No matter what the nature of its relationship to Rome was in those early centuries, Satricum's world crumbled around 488 B.C. when it was overrun by a tribe known as the Volscians who descended from the hills to the south and east of Satricum. They occupied the town for as long as 150 years, and may have used Satricum as a base in their intermittent wars with nearby Rome—until the Romans expelled them from Satricum and the surrounding lands in 346 B.C. Livy describes the Volscians as an uncouth, warlike people from Lazio's lowlands, semi-savages whose main role in history was to be crushed by the Roman war machine. But the Vols-



The Dutch archaeologists who excavated Satricum discovered the cemetery of the Volscians, a people known to have occupied the site for almost 150 years. They had previously been missing from the archaeological record.

cians were missing from other texts and, so it seemed, from the physical record, until the 1980s, when Gnade and other Dutch archaeologists began finding tombs in Satricum barely six feet from the Mater Matuta temple. The tombs had all been dug around the same time and were numerous—an astounding 250 in total, with the remains of men, women, and children decked out with a hodgepodge of Latin, Greek, Etruscan, and unplaceable artifacts, some of which date from centuries before the Volscian invasion. These tombs clearly weren't Latin or Roman, since neither would have buried their dead next to a holy shrine. "It was the Volscians. Here they were," says Gnade.

The Volscians do not, however, seem to have built houses in Satricum. Not a single residence from that period has been found, only tombs. It could be that the Volscian settlement hasn't



This statue of the goddess Mater Matuta, believed to be a deity of fertility and the dawn, was found in Satricum, where her main sanctuary was located.



Excavations have revealed the smooth surfaces (left) of pre-Roman roads leading to the Mater Matuta shrine and quarried blocks (right) flanking part of the pavement, the same techniques later adopted by Roman engineers for construction of roads all across the empire.

been identified yet, but Gnade speculates that they might have turned the once-thriving town of Satricum into a giant cemetery. In any case, the Volscian presence ended abruptly, and Satricum, now dominated by Rome, began regaining its prosperity. “Satricum had recovered from the quarrels of the beginning of the fifth and early fourth centuries B.C., during the Volscian period,” says Gnade, “and the town was able to develop once again into an important node in the commercial networks of the Mediterranean world.”

WHATEVER ITS TIES TO ROME, Satricum’s defining characteristic in antiquity was that it was the location of the huge, pillared shrine to the Latin goddess Mater Matuta. This majestic temple stood for at least five centuries, beginning in the late seventh century B.C., on a hill at the center of town. Believed to be a deity of fertility and the dawn, Mater Matuta appears in motherly poses in sculpture and pottery, nursing children or sitting regally on a throne as if presiding over a grand family banquet. Archaeologists have found fragments of the shrine’s exterior decorations: satyrs, monsters, a face of Zeus, a painted image of a Gorgon, her tongue hanging out. They all suggest a high-level center of worship. Many of the images echo Etruscan art, again pointing to the cultural influences spreading across central Italy at a time when Rome was one power among many. The shrine collapsed or was destroyed at the time of the Volscian occupation and was rebuilt on an even larger scale when the Romans took over after 346 B.C. Mater Matuta was later adopted as a goddess by the Romans. The shrine, however, seems to have had broader influence than that.

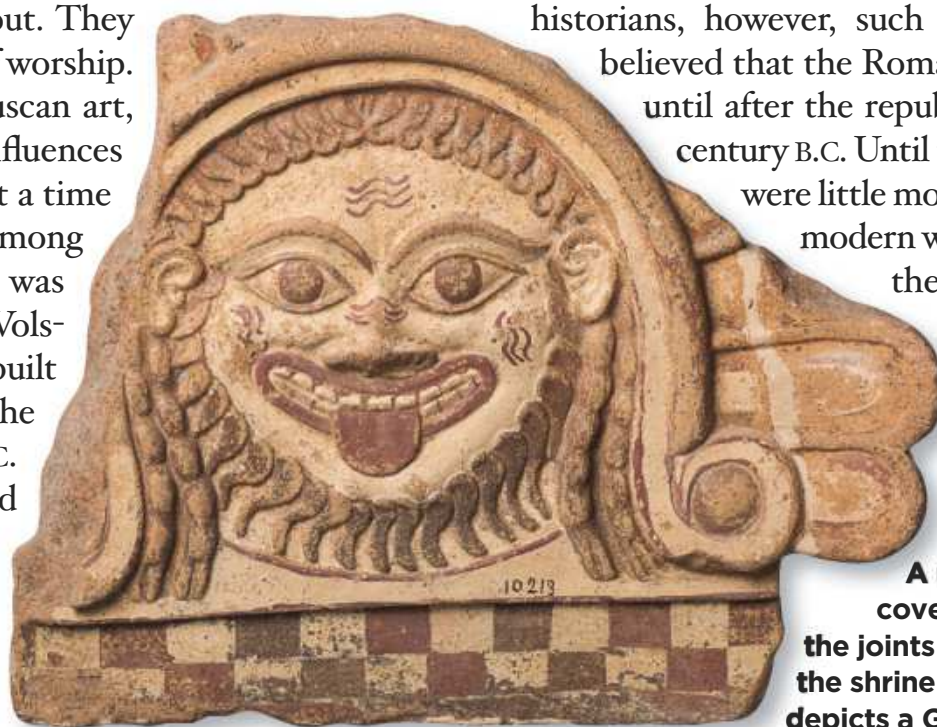
According to Gnade’s re-

search, the Mater Matuta shrine played an unexpected role in another form of appropriation on the part of Rome—high-quality paved roads. The first paved roads in Satricum appear at roughly the same time as the construction of the first Mater Matuta temple in the late seventh century B.C. “Mater Matuta made Satricum important, and the roads brought the people to the temple,” says Gnade. Thus these early roads may have been intended not for transporting soldiers or for commerce, but instead for moving pilgrims who came to worship a gently smiling goddess.

Centuries later, during Rome’s heyday, 29 major roads famously radiated out from the capital, carrying soldiers, goods, and ideas to the farthest reaches of the empire. “There is hardly a district to which we might expect a Roman official to be sent, on service either civil or military, where we do not find roads,” writes an anonymous traveler in about A.D. 200 in an account known as the *Itinerary of Antoninus*. Everywhere they went, Roman road builders flattened the contours of the land, filled in swamps, and cut through hillsides. When they encountered a river or sea, they brought the road to the water’s edge and continued it on the opposite shore. Ancient

historians, however, such as Dionysius of Halicarnassus, believed that the Romans did not develop paved roads until after the republic was established in the sixth century B.C. Until then, they thought, Roman roads were little more than widened footpaths. Most modern writers have taken their cues from

the ancient texts, accepting that roads were a comparatively late development in Rome’s history. “In fact, the earliest pavement that has been found was laid in 174 B.C., on a street that ascends



A painted terracotta antefix, a covering at the end of a building for the joints of a tiled roof, once decorated the shrine of Mater Matuta. This example depicts a Gorgon, a type of female monster.

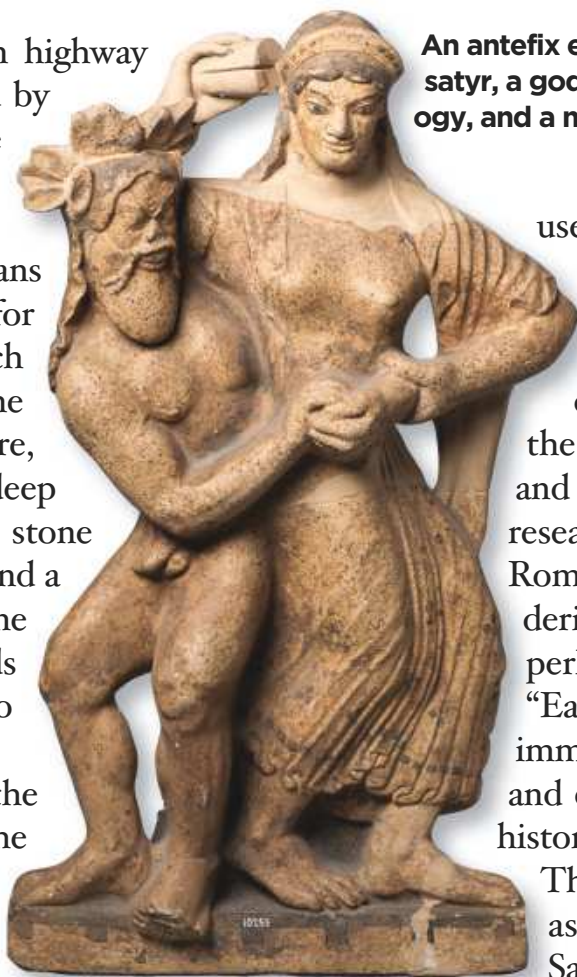
the Capitoline Hill,” writes the American highway engineer Albert Rose in a paper published by the Smithsonian Institution in 1935. Rose saw, in Rome’s roads, a model for America’s soon-to-be-built interstate highway system.

New evidence suggests that the Romans seem to have acquired the technology for building smooth, durable thoroughfares much earlier than the second century A.D. from the Latins, and possibly from Satricum. There, Gnade has excavated roads that have deep bedding for drainage and erosion control, stone blocks arranged on the sides of the roads, and a hard surface made of quarried volcanic stone known as tufa. Up to 18 feet wide, the roads were large and tough enough for chariots to pass over easily.

“It’s been known for a long time that the concept of road-building didn’t start with the Romans,” Gnade says. The Greeks paved their roads, and their techniques were probably imported to Italy by way of Greek colonies on the southern Italian coasts. How the technology spread from there is only slowly coming into view. “We have, at Satricum, the first road-building techniques found in Lazio,” says Gnade. “And this gives us clues as to how they originated.” She is careful not to pronounce the inhabitants of Satricum the inventors of the Roman road, but says, “I don’t know of any parallel for this kind of road-making in Italy this early.”

On the northern edge of Satricum, between ancient building foundations, Gnade’s team has uncovered a street almost 10 feet wide with long, shallow ruts where chariot wheels once ran. The road appears to be a secondary route, an out-of-the-way street stemming from a previously excavated main road that traveled along the town’s periphery. Yet even this comparatively minor route shows advanced know-how. The team has discovered that, like the much larger roads, this one was built on a trench filled with gravel mixed with broken pottery, roof tiles, and other debris that may once have been the foundation for a previous pavement, suggesting regular maintenance and repaving. On top of that level, the builders constructed a drainage layer of compacted sand containing tile fragments and tufa blocks. And above that, they placed a thick layer of hard-as-cement tufa that would have provided a relatively smooth ride. Rows of suitcase-sized stone blocks along the road’s edges held in the landfill where necessary. “At Satricum,” Gnade says, “they monumentalized road-building.”

Road development, in Gnade’s view, must be seen in the larger context of social change in the pre-dawn of the Roman Empire. As Etruscan influence waned, towns were becoming bigger and busier, and religious pilgrimage was gaining mass appeal. Technically sound, durable roads were both the means by which these broad changes advanced and a reflection of them. “You need to look at the infrastructure, at the landscape over large areas,” says Gnade. “How did people



An antefix excavated at the Mater Matuta shrine shows a satyr, a god of the woods in ancient Greco-Roman mythology, and a maenad, a female follower of the god Dionysus.

use the landscape? And how are the urban elements connected to the rural landscape? You can’t just look at temples and tombs to understand what was going on.” She is one of many scholars currently examining the cultural interactions between the Romans and the peoples they conquered. This line of research is rewriting the familiar narrative of Rome having obliterated its neighbors, a view derived from ancient texts that glorified, and perhaps exaggerated, the city’s military exploits. “Early Romans were in close contact with their immediate neighbors, so cultural, technological, and engineering interactions were a given,” says historian Craige Champion of Syracuse University. The theory that the Mater Matuta cult acted as a catalyst for the construction of roads into Satricum is plausible, he says, but hard to prove.

JUST AS ROADS CAN help a community thrive, their absence can lead to its decline. In the third century B.C. the Romans built the Appian Way, their main north-south artery running directly from their capital to the southern port of Brindisi. The Appian Way was a true marvel of engineering, but it bypassed Satricum. The town languished, losing population as Rome extended its reach across the continent. Livy remarks on a deeply inauspicious sequence of events, a possible omen of what was to come: In 207 B.C., he writes, lightning struck the shrine of Mater Matuta and, afterward, two snakes were seen crawling out of the town’s temple of Jupiter. The historian never mentions Satricum again. As time progressed, Satricum became part provincial backwater, part Roman suburb, and it held on for a few more centuries. A sprawling villa built to its north sometime around 100 B.C., judging from recently excavated ceramic evidence, was occupied for about five centuries.

The Latins of Satricum were eventually and effectively absorbed into Rome, and their story was, for the most part, lost. “Rome was formed from a number of coalescing ethnic elements,” says Tuck. “Its early territorial expansion relied on many different forces, some militaristic, but also economic, ethnic, and social. Its success was the result of its willingness to be inclusive.” Two thousand years ago, Dionysus of Halicarnassus expressed a similar view. It wasn’t just roads that allowed Rome to thrive and expand, he believed, but also the fact that people absorbed into the empire were offered citizenship. “Indeed, Romans gladly received all strangers and made them citizens,” he writes, “honoring every man according to his merit.” They would not have been able to do so without the efforts of their earlier neighbors. ■

Roger Atwood is a contributing editor at *ARCHAEOLOGY*.

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A rocky plateau that now lies within the boundaries of Lava Beds National Monument in northern California was the scene of the 1872-1873 Modoc War.

LETTER FROM CALIFORNIA

INSIDE A NATIVE STRONGHOLD

A rugged volcanic landscape was once the site of a dramatic standoff between the Modoc tribe and the U.S. Army

by JULIAN SMITH

In 1872, some 150 members of the Modoc tribe took refuge in arid and unforgiving terrain just south of the Oregon-California border. Today, Lava Beds National Monument encloses 73 square miles of this harsh landscape on the southern edge of Tule Lake. Eruptions as recent as 800 years ago have left raw expanses of lava, tuff, and obsidian pocked

by caves and laced with the largest known concentration of lava tubes in North America. Here, amid a maze of volcanic walls, boulders, fissures, and holes, 50 to 60 Modoc warriors held off a much larger force of U.S. Army soldiers for half a year.

The Modoc War is far less well known than other major Indian wars of the late nineteenth century, such as

the Great Sioux War of 1876, which is famous for the Battle of the Little Bighorn. “The Modoc War remains an untold piece of American history,” says National Park Service archaeologist David Curtis. “It was very short, but the archaeological footprint that was left behind is enormous. It rivals Civil War battlefields.” For two years, Curtis has led a team of archaeologists study-

LETTER FROM CALIFORNIA



A photograph shows the Modoc chief known as Captain Jack, one of the tribe's principal leaders. His band's conflict with the U.S. Army sparked the Modoc War.

ing this vast site. They are building on a comprehensive survey conducted by archaeologists Eric Gleason and Jackie Cheung for the National Park Service in the wake of a 2008 fire that burned off much of the vegetation that had grown in the 136 years since the Modoc War. That fire brought the site closer to its nineteenth-century appearance and exposed numerous features and artifacts dating to the war. Gleason and Cheung's work was aided by the fact that newspapers and magazines of the time sent numerous correspondents to California to cover the war. Comparing these accounts and contemporary photographs with archaeological findings has added new layers of understanding to this often-overlooked episode in the history of the American West.

People have inhabited the Tule Lake Basin for at least 11,500 years. By the nineteenth century, bands of Modoc lived in seasonal villages along the banks of the Lost

River, the lake's source, which empties into its northwest corner. Nicknamed the Everglades of the West, the lake once covered 100,000 acres and provided local tribes with abundant fish, game, and edible plants. The Modoc moved between permanent dugout homes in the winter and temporary structures built near seasonal food sources in the summer. Tule reeds supplied them with sustenance as well as sleeping mats, moccasins, baby cradles, and baskets woven from its fibrous stalks.

Settlers started to arrive in large numbers in 1846, when pioneers blazed a side branch of the Oregon Trail through the area. Tensions escalated into raids and ambushes by both sides, and in 1864 the federal government pressured the Modoc to give up their traditional lands and settle on a nearby reservation. But when the government didn't provide enough rations, tribal members began

to return to their homelands, some of which were now occupied by settlers.

In November 1872, U.S. Army troops arrived at Lost River to convince a band of Modoc led by a chief known as Captain Jack to return to the reservation. Captain Jack and his group refused the military's order, and gunfire erupted, with casualties on both sides. Captain Jack's band fled by canoe, and at the south end of the lake they were joined by the Hot Creek band under chief Shacknasty Jim, who had killed 14 settlers as they traveled down the lake's eastern shore. Together, the Modoc bands dug in on top of a 30-foot-high plateau of lava surrounded by deep fissures. Bordered by the lake to the north and more lava fields to the south, the place was known to the tribe as the "land of burned-out fires." As a result of the events that followed, it would be known to history as Captain Jack's Stronghold.

The Army set up camps in open



Two low-lying, C-shaped walls built from basalt blocks would have sheltered U.S. Army riflemen during their six-month standoff with the Modoc warriors.

areas to the east and west in an attempt to surround the tribe. On the foggy early morning of January 17, 1873, more than 300 soldiers and volunteers from Oregon and California attacked from both sides. Even though their forces outnumbered the Modoc six to one, the assault quickly turned into a disaster for the Army. Lava cracks in the stronghold made ideal rifle trenches. Concealed Modoc snipers picked off Army soldiers as they crossed open fields of sagebrush, and dense fog made it impossible for the soldiers to use their mountain howitzers with any accuracy.

When it became clear that the plan to encircle the Modoc and cut them off from their water supply wasn't working, the Army troops withdrew, counting 12 killed and 25 wounded. By contrast, only a few Modoc were wounded, and after the Army's retreat, the warriors were able to collect Army rifles and ammunition from the battlefield. Both sides dug in for what was to become a six-month siege.

Today, a visitor to the battlefield can still make out cairns, walls, and other structures built of basalt stones by both the Modoc and the U.S. Army. In their survey, Gleason and Cheung recorded 756 fortification features here in all, including at least 569 rifle pits, or small barricades built for cover during battle. It wasn't always obvious to the pair whether a feature was natural or constructed, especially since basalt tends to fracture naturally into flat-sided building blocks. But it was usually clear which side built a feature based on its shape or orientation. Gleason notes that some fortifications were obvious Army picket posts, waist-high circular walls of stones that sheltered three or four men on guard duty. Low C-shaped walls protected individual riflemen lying on the ground.

The survey showed that the action happened over a much larger area than was previous thought, expanding



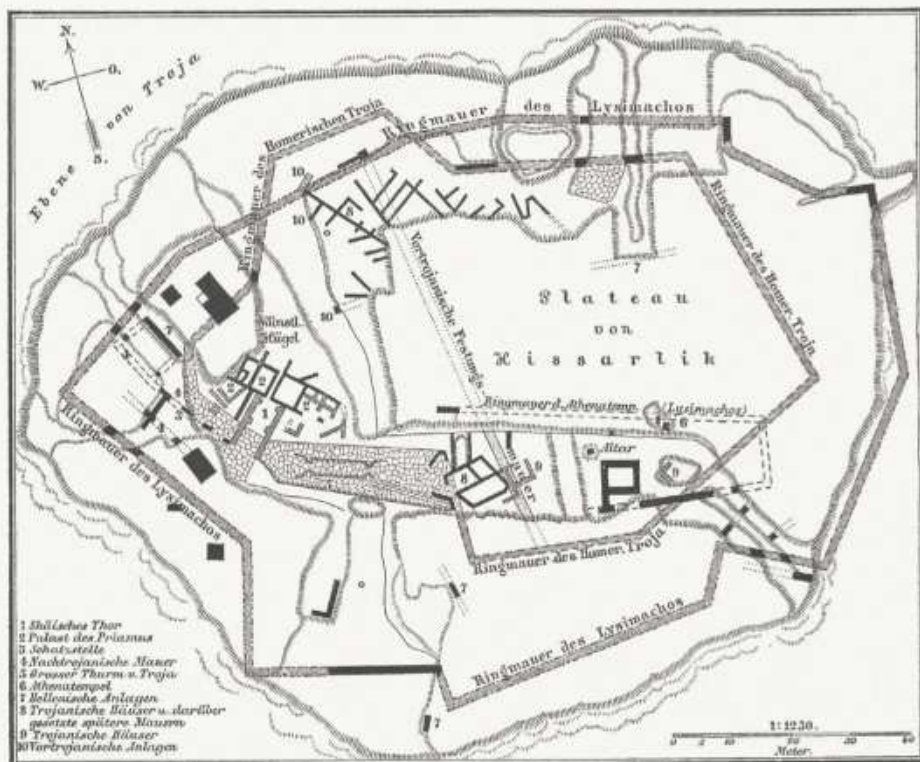
Stereoscopic images by the English photographer Eadweard Muybridge taken during the war show U.S. troops at their picket post (top), and a Modoc warrior posing behind a defensive wall (above).

the stronghold from 183 acres to 445. Gleason and Cheung were astounded by how intact the site is. "You can still match individual rocks in historic photos," says Gleason. This is in spite of the fact that souvenir-seeking tourists have been traveling to the battlefield since 1873. At least initially, these visitors were drawn in part by the extensive international media coverage the war received as it unfolded. Correspondents from *Harper's Weekly* and *The Illustrated London News* filed stories from the field, and a reporter from the *New York Herald* even secured an interview with Captain Jack. The photographers Eadweard Muybridge, who is famous for his motion studies of animals and

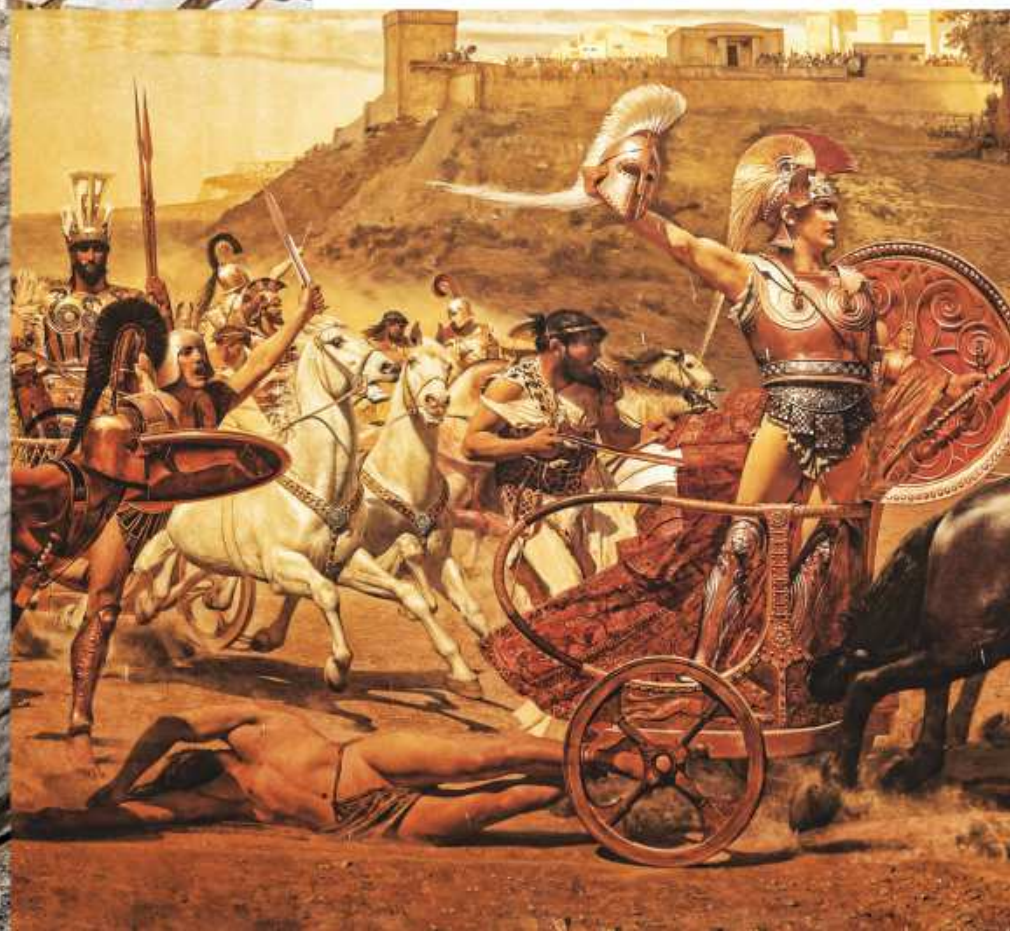
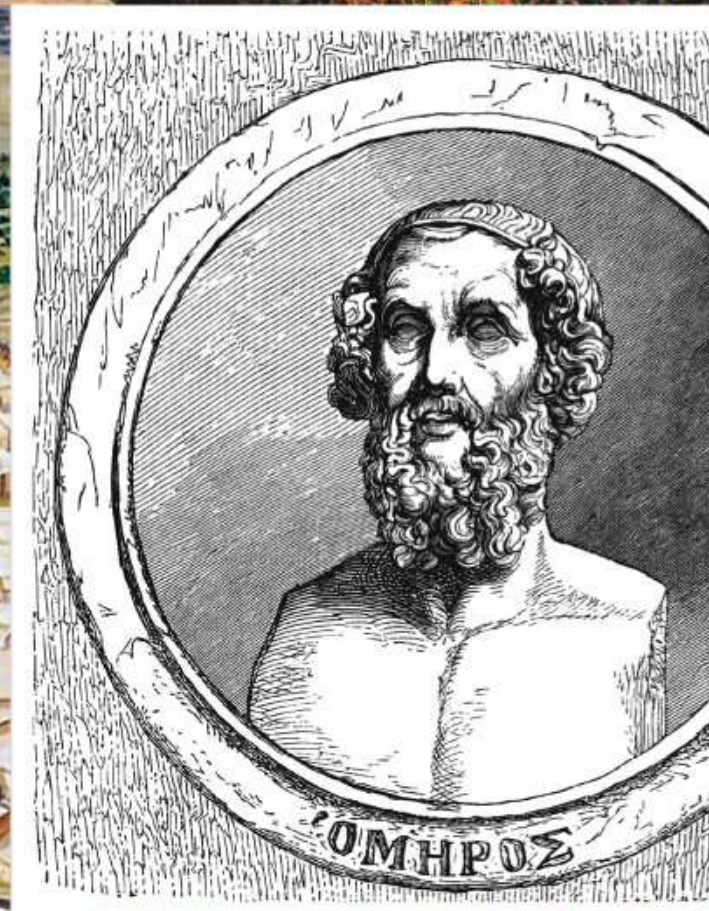
people, and Louis Heller took dozens of stereoscopic images of the lava fields and participants on both sides. The coverage swayed public opinion to the side of the besieged tribe—at least at first. It also provided a rich contemporary record that historians and archaeologists are still tapping.

These accounts described the Modoc as taking full advantage of the lava plateau's natural defenses. One Army captain involved in the fighting said, "I have never before encountered an enemy, civilized or savage, occupying a position of such great natural strength as the Modoc stronghold, nor have I ever seen troops engage a better

(continued on page 60)



Plan von Hissarlik (Troya).



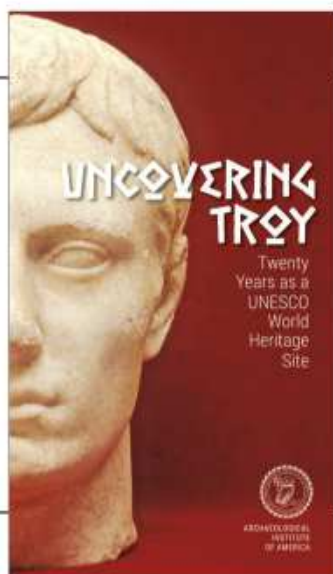


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This year marks the 20th anniversary of the ancient city of Troy's listing as a UNESCO World Heritage Site. Located in the Çanakkale province in Turkey, Troy is the famous site of the Trojan War as first described in Homer's *Iliad*. Over the centuries since its writing, the epic's larger-than-life characters—Achilles, Hector, Paris, Helen, Odysseus, Agamemnon, and others—have become part of many cultures.

The Trojan War, however, is only a part of Troy's rich history. Archaeologists have found nine successive cities on the site of Troy, each built upon the ruins of earlier settlements. From the time of its founding circa 3000 BCE, the city has been home to the Greeks, Romans, and other civilizations, each of which has left physical evidence of its occupation. Today, Troy's ruins are an archaeological destination visited by thousands every year.



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The AIA thanks Richard C. MacDonald for his generous support of the Year of Troy Project.

LETTER FROM CALIFORNIA

(continued from page 57)

armed or more skillful foe.” It didn’t help that the attacking troops were “a hodgepodge from all over after the Civil War,” says Curtis. “They were undersupplied, morale was low, and a lot of them were volunteers.” In contrast, the Modoc considered the entire landscape sacred. “You can only imagine their determination,” he adds.

Over the three months after the initial Army assault, the Modoc settled in and tended to their defenses. Documenting these natural and constructed fortifications helped illuminate the Modoc battle strategy. “The original idea was that the Modoc picked a pretty good spot and were pretty good fighters,” says Gleason. “Now we know they were improving it, building fortifications in strategic locations, even burning brush for visibility.”

The Modoc also built corrals for 100 or so wild cattle that had roamed the lava beds and constructed camps consisting of small lodges out of willow poles and mats woven from tule reeds. Gleason and Cheung were able to pinpoint and survey seven of these Modoc camps, showing for the first time how the tribe remained divided into small bands just as they had been before the fighting. Despite more than a century of souvenir-hunting, artifacts such as cow bones, buttons, beads, and rifle cartridges remain at the camps. Using historical photographs, Gleason and Cheung identified one of the camps as belonging to the



An engraving (top) of the cave where Captain Jack took refuge was published in the May 31, 1873, issue of *The Illustrated London News*. Today, the cave’s entrance (middle) and its interior (bottom) remain largely unchanged.

Hot Creek band. This site has special significance to Cheewa James, a Modoc historian and author who has worked at the monument. Shacknasty Jim, the Hot Creek chief, was James’ great-grandfather. Shacknasty Jim’s son Clark, her grandfather, was born there during the siege. “When I used to lead tours, I’d look in the caves and wonder if that’s where they lived, where my grandfather had been born, but we had no way of knowing,” she says. James’ first visit to the campsite after archaeologists identified it as the place of her grandfather’s birth was a moving experience. “My hair must have been at least six inches off my head,” she says. “It was just astounding, seeing where they lived and ate, where my grandfather was actually born. It’s astonishing to think that life continued right there. That’s where he survived.”

Some Modoc chiefs and their families sheltered in caves formed by collapsed lava tubes. Devery Saluskin, a member of the Modoc tribe who worked as an archaeological technician during the 2010 field survey, also has family ties to the site. He was able to visit the cave where his great-great-great-grandfather Peter Schonchin lived during the siege. “Seeing

(continued on page 62)

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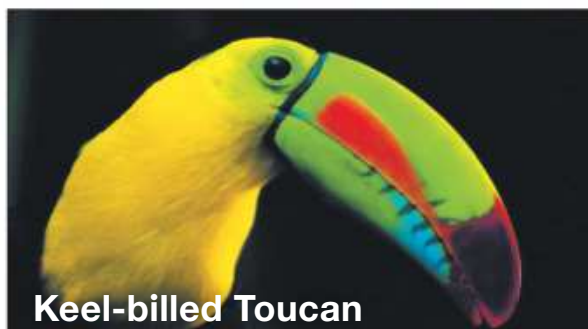
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LETTER FROM CALIFORNIA

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where he slept as a 14-year-old boy, it's not just some far-off history," Saluskin says. "It really brought me closer to my ancestors."

At 43 by 23 feet, Captain Jack's cave was the largest. Here was where the Modoc leaders sat and argued through the winter about what course to take. The tribe wanted six square miles of their ancestral homeland to settle on permanently, while the U.S. government demanded they hand over the Hot Creek warriors who had killed the settlers.

The government eventually formed a peace commission headed by Brigadier General Edward Canby and set a meeting for April 11. In the stronghold, Jack argued for reaching a peaceful settlement. Other Modoc chiefs wanted to keep fighting. They pointed out how the whites had killed Modoc people, including some of their own family members, under flags of truce more than once. They may also have thought that if they could kill

the Army leaders the troops would be demoralized and end the siege. Jack was mocked and overruled.

The meeting of the peace commission and the Modoc chiefs fell on Good Friday. Jack's cousin, a bilingual Modoc woman named Winema (also known as Toby Riddle) served as interpreter along with her white husband. She had warned Canby of rumors of an ambush, but he insisted on receiving the chiefs at the Army's western camp. The two sides had talked for less than an hour when the Modoc pulled out pistols, killing Canby and another negotiator and severely wounding Alfred Meacham, superintendent of Indian affairs for Oregon. Winema dragged Meacham to safety, and the Modoc fled back to the stronghold. Canby was the only full general killed during the Indian wars and the ambush made international news. It also turned public opinion against the tribe. The Army brought in hundreds more soldiers to remove the Modoc once and for all.

Gleason and Cheung have identi-

fied three Army camps, cataloging artifacts such as glass bottles, tin cans for food and tobacco, horseshoes, nails, and clothing fragments. Rifle cartridges and bullets were among the most common items in camps and on the battlefield. Identifying them by make and model enabled the researchers to recreate skirmish lines and sniper positions based on where different types of ammunition were found, since the Army used breech-loading rifles and pistols, while the Modoc mainly used older muzzle-loading rifles.

Pieces of mortar rounds, howitzer shells, and friction primers—a trigger mechanism for cannons—showed where the Army had set up emplacements for mortars and mountain howitzers, light and portable artillery pieces that had been used extensively in the Civil War. By examining historic records of the fighting, Gleason says it was possible to narrow down the provenance of some artifacts to an astonishing degree. "It's not very often in my career I've been able to pick up an artifact and know the day it was dropped and probably the person who dropped it," he says.

For Saluskin, recovering artifacts such as the shell fragments initially provoked another kind of response. "That's not just some artifact," he remembers thinking the first time he saw one in the field. "That shell was sent to kill my ancestors." It took some time for him to become accustomed to nonmembers of the tribe handling these kinds of objects, he says, even for scientific purposes. But the archaeological work offered him new insight into an event that was critical to the history of his people. "I got to know that place intimately, wandering all over, being able to let my DNA experience every crack and crevice and lava mound and rock wall."



An engraving from the June 7, 1873, issue of *The Illustrated London News* depicts Modoc warriors taking up defensive positions in their stronghold.

On April 17, 1863, the Army attacked Captain Jack's Stronghold again. As before,




A misfired rifle cartridge (above, center) was found in situ on the walls of a U.S. Army rifle pit. Archaeologists recovered spent ammunition from across the battlefield.

troops advanced from the east and west simultaneously, with the goal of encircling the Modoc and cutting them off from the lake. This time the fighting force was not made up of volunteers, but solely of professional soldiers—close to 700—accompanied by scouts from the Warm Springs tribe of northern Oregon.


“After the first battle, the soldiers were really leery of the Modoc and their ability to move and shoot,” Gleason says. According to newspaper reports, Army veterans of the first battle knew enough to advance at night, blackening their faces and guns and covering their heads with dark cloth. Mortar fire covered their movements. But their advance was initially stymied by the additional fortifications built by the Modoc and the fact that there was no brush to use for cover.

After fighting their way into the stronghold, the soldiers found it deserted except for a few Modoc who were too sick or injured to travel. The defenders had slipped out under cover of darkness and headed south.

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LETTER FROM CALIFORNIA



Clockwise from far left: A copper U.S. Army button and chinstrap slide, both less than an inch wide, as well as the fragment of an exploded mortar shell, about four inches wide, were found on the battlefield.

The battle left six soldiers dead and 17 wounded, with only two to four Modoc casualties.

Two weeks later, a band of Modoc warriors ambushed an Army scouting patrol made up of 60 men at Hardin Butte, four miles south of the stronghold. The attack left 22 soldiers dead, including all five officers. A Modoc chief nicknamed Scarfaced Charlie is said to have let the rest of the soldiers go, shouting, “We don’t want to kill you all in one day.” But the victory masked the toll the retreat from the stronghold had taken on the Modoc. Famished and weary, the Hot Creek band surrendered on May 22, followed by Captain Jack’s group 10 days later.

A military court sentenced Jack, Schonchin John (Peter’s father), and two other Modoc chiefs to death. Two more chiefs were sent to Alcatraz for life. After the hanging, the prisoners’ heads were sent to the Army Medical Museum in Washington, D.C., though they have since been repatriated to the men’s descendants. The remaining prisoners were transported to a reservation in Oklahoma, where nearly half

died from disease and malnutrition over the next decade.

The Modoc War was the only major Indian war in California, and relative to the number of combatants, it was one of the most expensive in U.S. history. To defeat some 60 native warriors, the government spent an estimated \$400,000–\$500,000, the equivalent of \$8.4 million–\$10.5 million today, and counted more than 100 casualties. In comparison, the six square miles the Modoc had requested to settle on would have cost \$20,000.

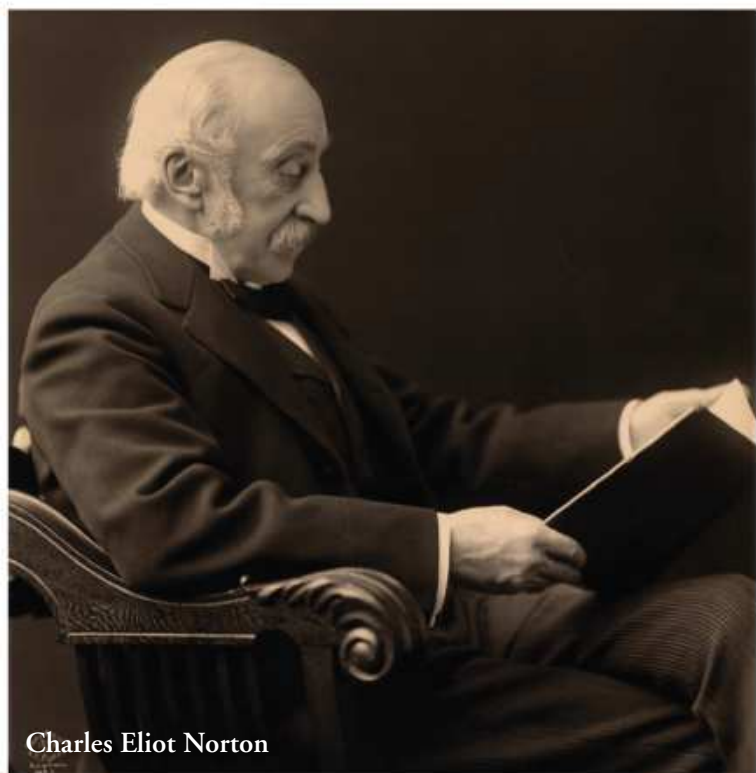
Today there are about 300 Modoc in Oklahoma, and about the same number belong to the Klamath Tribes of southern Oregon,

which include the Klamath and Yahooskin peoples. In 2017, the Modoc tribe of Oklahoma made a return of sorts to their ancestral lands by purchasing 800 acres to the north and west of the monument. It is important, says Saluskin, for the tribes to be as involved in the archaeology and administration of the site as possible. “It’s not just a snapshot of 1872,” he says. “It’s a sacred place, and it’s a sad place.” Near the end of a trail that now wends through Captain Jack’s Stronghold stands a 10-foot pole that was wedged upright in the rock after the 2008 fire. It is covered with bandannas, baseball hats, colored cloths, and beaded jewelry, items left by Modoc to honor their ancestors’ act of defiance. ■

Julian Smith is a contributing editor at ARCHAEOLOGY.



Modoc tribal members leave offerings to honor their ancestors on a wooden pole at the end of a trail in Lava Beds National Monument.



Charles Eliot Norton

AIA TURNS 140 IN 2019

In 1879, Harvard University professor Charles Eliot Norton and his colleagues and friends founded the Archaeological Institute of America in Boston to promote and conduct archaeological and artistic investigation and research. One hundred eight people attended the first AIA meeting. Since then, it has grown to become the largest archaeological organization in North America, with more than 220,000 members.

Today, in keeping with Norton's vision, the AIA continues to support archaeological excavation, research, and publication, and works for the protection and preservation of archaeological sites around the world. In addition, its annual meeting is attended by around 2,500 scholars. The AIA publishes *ARCHAEOLOGY* magazine and the *American Journal of Archaeology* and hosts websites that are visited by millions of people each year. Through its extensive grant program, it provides a variety of resources for professional archaeologists and the general public. Learn more about the AIA at archaeological.org.

120TH AIA-SCS JOINT ANNUAL MEETING IN SAN DIEGO, CALIFORNIA

Thousands of scholars will gather at the AIA-SCS Joint Annual Meeting in San Diego, California, January 3–6, 2019. The

meeting, to be held at the Marriott Marquis San Diego Marina, is an opportunity for scholars and students to come together

San Diego, California



to discuss research results and learn about the latest findings in the fields of archaeology, classics, and philology. The program kicks off on January 3 with a public lecture by archaeologist Sarah Parcak, followed by the Opening Night Reception. Academic sessions begin on Friday, January 4, and end on Sunday, January 6. In addition, the meeting will feature receptions, networking events, the AIA awards ceremony, and the annual meeting of the AIA Council.

We hope you'll join us in San Diego. Information about discounted hotel rates and travel, as well as the most up-to-date information on the academic program, is available on the Annual Meeting section of the AIA website at archaeological.org/annualmeeting.



DISPATCHES

FROM THE AIA

EXCAVATE • EDUCATE • ADVOCATE

CELEBRATE THE AIA'S ANNIVERSARY AT ARCHAEOCON 2019 IN SAN DIEGO

To mark the AIA's 140th anniversary, the AIA-SCS Joint Annual Meeting will feature a public event, ArchaeoCon 2019, on Saturday, January 5, at the Marriott Marquis San Diego Marina.

ArchaeoCon will be a day of entertaining programs, workshops, and demonstrations that celebrate archaeology and the AIA. Local archaeological organizations and AIA Societies will host booths and exhibits with interactive activities and hands-on experiences. Participants will have the opportunity to hear from and talk to leading archaeologists. Headlining the festivities are space archaeologist and Egyptologist Sarah Parcak and television personality Josh Gates. Parcak is associate professor of anthropology and director of the Laboratory for Global Observation at the University of Alabama at Birmingham. She is also the winner of the 2016 TED Prize. Gates is an archaeologist, television presenter, producer, and author who currently hosts and co-executive produces the Travel Channel series *Expedition Unknown* and *Legendary Locations*.

Please join us for a fun day of archaeology. ArchaeoCon 2019 will be a unique opportunity to learn about all the AIA does and to introduce friends and family members to the Institute. Visit archaeological.org for more information.

MORE THAN A CENTURY OF AIA LECTURES

View of the main street, Gerasa (Jerash)



The 123rd season of the AIA Lecture Program began in August and will run through May 2019. The Institute's longest-running public outreach program reaches thousands of people each year. The current season features 79 leading scholars who will present 222 lectures at AIA Societies across the United States and Canada. AIA lectures are always free and open to the public, and we encourage you to attend one near you. This year's

Lecture Program explores a wide variety of topics, with lectures including *King Richard III: The Resolution of a 500-Year-Old Cold Case*; *Exploring the Roots of the Vine: The History and Archaeology of the Earliest Wines*; *Beyond Indiana Jones: Digital Storytelling in Archaeology*; *Grave Bj 581: The Viking Warrior Who Was a Woman*; and *New Archaeology Research at Jerash—One of the Famous Roman Decapolis Cities*. The schedule of upcoming lectures is available online at archaeological.org/lectures.

OUR NEW CALENDAR IS AVAILABLE

The stunning 2019 AIA calendar, "A Year of Archaeology," is now for sale at archaeological.org/calendar. The calendar features archaeological images from around the world that were submitted to the AIA's Annual Photo Contest. Buy your calendar today and don't forget that "A Year of Archaeology" makes a wonderful gift for the archaeology lovers among your friends and family. All proceeds support AIA programs, including our efforts to protect and preserve 29 sites around the world. Buy your calendar today at archaeological.org/calendar.

MEMBERSHIP

Join the AIA today. The AIA is North America's largest archaeological organization and AIA members support archaeological research, outreach and education, and the conservation and protection of archaeological sites around the world. Over 100 AIA Local Societies in the United States and abroad provide members with the opportunity to connect to archaeology and each other in their local communities. Joining is easy: Visit archaeological.org/join to become an AIA member.

We have an exclusive membership offer for *ARCHAEOLOGY* magazine subscribers: For just \$40, you can upgrade to a Supporting Membership in the AIA. As a Supporting Member, you will be able to join an AIA Local Society near you and attend AIA member events. Go to archaeological.org/upgrade to take advantage of this special deal.

JOIN A SOCIETY TODAY

In addition to supporting the Lecture Program, AIA Local Societies organize many other events, including archaeology fairs, conferences, colloquia and symposia, themed dinners, and even garden parties. Societies and their members are the backbone of the AIA. Join a Society near you to become a part of this wonderful network of people who are doing things to promote and preserve archaeology. To learn more about our Societies, visit archaeological.org/societies.

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PREHISTORIC CAVE ART OF SPAIN & FRANCE

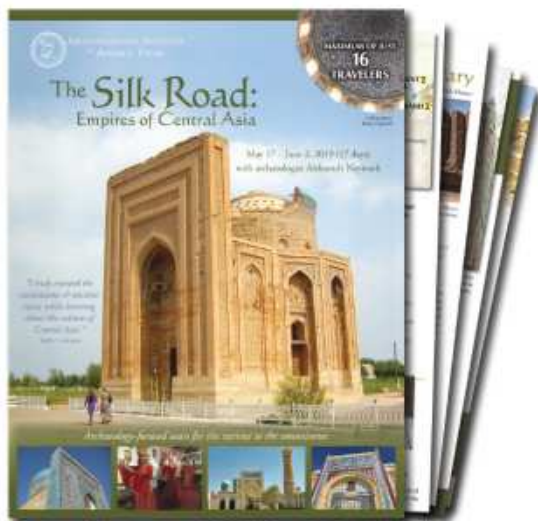
September 18 - 30, 2019 (13 days) with Paul Bahn

Altamira, Spain © Thomas Quine

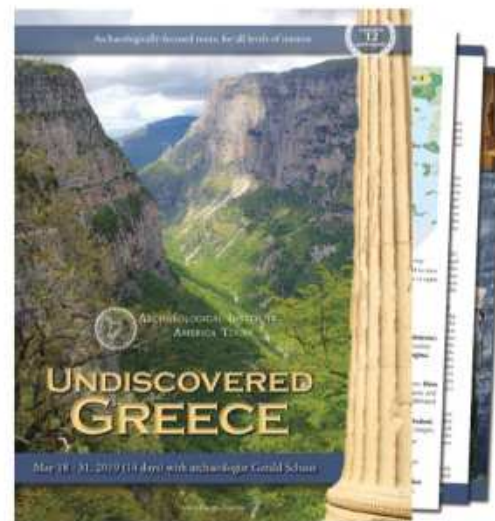
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Even in the darkest moments of their lives—and perhaps even more so at those times—human beings have a remarkable ability to create something beautiful. This decorated canteen is evidence of that capacity. A touching example of “trench art”—an object fashioned by soldiers, civilians, or prisoners in the midst of warfare or conflict—the canteen began as a standard, functional item used to carry water or alcohol. But when its owner, a Russian soldier, was interned in the Czersk POW camp in northern Poland, he created a lasting memento of his experiences.

The soldier who owned the canteen carved his initials, O and R, on its back on April 15, 1915, the very day he was taken captive by German troops, according to Dawid Kobiałka of the Institute of Archaeology and Ethnology at the Polish Academy of Sciences, who studied the artifact. The scene the soldier carved on the front is a typical motif of nineteenth-century eastern European folklore. The clothing worn by the man, in particular his fur hat, is typical of that of a Cossack in both his daily life and his life as a soldier in the Great War. The vignette may represent the prisoner and his sweetheart—whether in an idealized or realistic representation is of course unknown. “Trench art is a complex phenomenon,” says Kobiałka. “One object can have many meanings and functions. The Czersk trench art gives insight into many aspects of how people tried to survive the long days, months, and years of imprisonment—and how creatively they used material culture to survive.”

WHAT IS IT
Canteen
CULTURE
Russian
DATE
1915–1918
MATERIAL
Aluminum
FOUND
Czersk prisoner of war camp, Poland
DIMENSIONS
5.31 inches wide, 8.85 inches long



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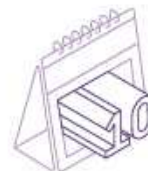
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